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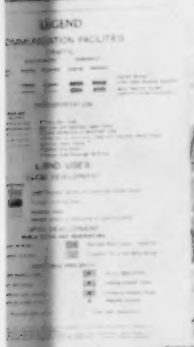
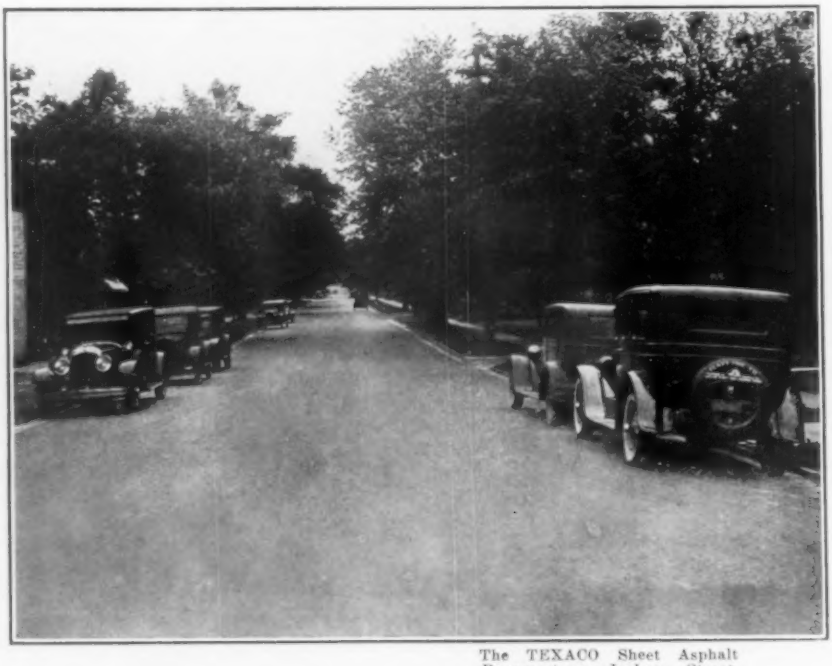


GRAPHIC REGIONAL PLAN

NEW YORK AND ITS ENVIRONS

(Reproduced from a six-color map, measuring 6 ft. 9 in. by 7 ft. 2 in., obtainable in 24 sections from the Regional Plan of New York and Its Environs.)

SEE "A MILLION DOLLARS' WORTH OF IDEAS ON CITY AND REGIONAL PLANNING" (PAGES 81-85)



The TEXACO Sheet Asphalt Pavement on Jackson Street, Danville, Ill.

streets

that make people say:

"a great town"

No matter how modern and progressive a city is in other respects, if its streets are rough, unsightly, neglected, people will avoid it, and advise others to do the same.

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Items and Abstracts on WATER AND SEWERAGE

Water from Ocean for Sprinkling Streets

ANOTHER city has been added to those that are using ocean water for sprinkling streets. Spring Lake, N. J., has joined the group of cities led by Newport, R. I., which has used sea water for sprinkling its streets for many years.

In its discussion of the Spring Lake experiment, the *Newark* (N. J.) *Evening News* remarks:

"An expert in chemistry, or whatever is the appropriate science, should be able without hesitation to tell whether the salt in sea water would have an injurious effect on gravel or paved streets. As the air along the rim of the Atlantic carries a strong saline content when the wind is from the east, which is much of the time, the ground already must be to a great extent impregnated with salt. That has not visibly harmed the roads and streets, and grass seems to grow as luxuriantly there as on similarly sandy soil farther inland.

"Fresh water has been generally used for sprinkling streets and lawns along the New Jersey coast. In some instances the water provided for household use has been considered harmful to lawns, and one of the shore communities, at least, piped a supply of lake water to supplement the other kind, which continued to be used for drinking and cooking.

"Should it be found that the inexhaustible store of sea water so close at hand is just as good as fresh water for sprinkling, then there undoubtedly will be eloquent expressions of regret for official consideration because of the vast sums which might have been saved by an earlier discovery."

An extensive inquiry, made by THE AMERICAN CITY and published in *The Municipal Index* in 1927, showed that even the concentrated use of salt on asphalt pavements in cities for melting ice had no deleterious effect upon the paving, so that there is little evidence that salt can have any bad effects. Where it is used on gravel roads, the accumulation of salt, which is an absorbent of water, together with the calcium chloride which is also found in sea water, should be of some assistance in reducing the dust nuisance, in addition to the immediate effect of the water in which the salts are dissolved.

Sludge Disposal at Activated Sludge Plants

THE disposal of sludge in lagoons and the old-fashioned cesspool is not always a nuisance, and yet it cannot be considered ideal or free from possible odor. Where remote from habitations, as at Indianapolis and Houston, it serves without serious objection as an inexpensive expedient.

Prepared sludge drying beds as found at the Calumet and West Side Works, Chicago, Antigo, Pomona, Lodi and Harbor City, are less objectionable and with well-digested sludge should be fairly free from odor. To prevent the spread of odor from fresh sludge, the beds can be covered with greenhouse construction, as tried out at the Calumet plant, but this adds materially to the cost, and, although it has generally been found to hasten drying, experience at the Calumet plant does not seem to have realized expectations, except as it has extended the period when drying may be carried on.

The success of the activated sludge process depends upon the building up of floc under aerobic conditions. At Milwaukee the floc was formerly so broken up by centrifugal pumping as to be unfilterable. This was largely overcome by the substitution of plunger pumps. At the Des Moines River works, however, but little difference was noted between the filterability of sludge pumped by centrifugal pumps and of that pumped by ejectors. A septic sewage is less amenable to floculation than one that is fresh. In addition to this, it is necessary to intensify floculation by "conditioning" the sludge, that is, to increase coagulation by means of chemicals. For this purpose sulphuric acid has been generally used in the past at Milwaukee, and sulphate of alumina at Chicago, but more recent experience at both plants points to the use of chlorinated copperas or ferric chloride; the choice depends in part on the cost and in part on the condition of the sludge.

At Milwaukee all three of the above conditioning agents are used in turn, depending on temperature conditions, sulphuric acid in summer and chlorinated copperas in winter. Ferric chloride, tried at the Calumet plant, appears to be still more effective in producing high rates of filtration, but its cost has generally precluded its regular use. To promote filtration and drying, Filter Cel, a diatomaceous earth, is used at Pasadena. Its effect is purely physical, but it is effective in promoting filtration. For eastern plants, freight charge would preclude its use, and a further disadvantage is in the dilution of the fertilizing ingredients of the product. Milorganite, from Milwaukee, contains about 7 units of nitrogen as compared with 5½ units in Nitrorganic from Pasadena.

In the matter of dewatering, the modern Besco-Ter-Meer centrifuge was found satisfactory in some respects with activated sludge at Milwaukee, but was abandoned on account of the cost and the large amount of fine suspended matter in the effluent which had to be returned for treatment. After experiment with various devices, the Oliver filter has been adopted at Milwaukee, the Calumet plant, Chicago, and Pasadena, the Berrigan press at the Des Plaines River Works, Chicago, and at the North Side plant in Houston an American continuous vacuum filter is being installed. By these devices the moisture is reduced to a point between 75 and 80 per cent, so that further drying by heat can be economically carried out.

The filter cake is dried in Atlas dryers at Chicago and Milwaukee, and in Rugles-Coles dryers at Pasadena. At Houston, Buckeye dryers are installed. The product from the dryer is ground, sifted and sold in Milwaukee at a net price, inclusive of freight, of about $15 per ton, at Chicago $25 per ton and in carload lots, and in Pasadena $32 per ton, f.o.b. cars.

The manufacture of fertilizer from activated sludge requires considerable capital outlay and careful technical skill, as well as educational work in building up the market, but the inherent value of the material is such that the revenue from sales under present conditions should about offset the cost of manufacture where transportation facilities are good and the market not too distant.

—Prepared from a report on methods of sewage treatment, made by the Comptroller and the Chief to the Board of Estimate and Apportionment, New York.

Water Consumption an Index of Sanitary Standard of Living

THE high daily rate of water consumption for domestic use in American cities is cited as an important economic trend in the survey of the National Bureau of Economic Research, which is published with the report of the Committee on Recent Economic Changes of the President's Unemployment Conference. This report states that water consumption appears to be not only an interesting index of the sanitary standard of living in the United States, but the comparative data throw considerable light on the variation in sanitary standards in the United States and Europe.

Although the statistics of the per capita daily consumption of water are hard to subject to refined interpretation, because they vary with the degree of the control over the water-supply, either through the use of meters or through the scarcity of water; and because it is generally not possible to separate the domestic from the industrial consumption, the disparities between American and foreign conditions are so marked as to command attention. In 1927, the per capita daily consumption of water in Baltimore was 129 gallons, in Chicago 292.8, in Cleveland 127.9, in Detroit 125, in New York 142, and in Philadelphia 168. In the same year the per capita consumption in Berlin was 37.8 gallons, in Hamburg 37, in London 43.4, in Manchester 42.3, and in Paris 47.2. Figures for 1926 indicated a per capita daily consumption in Amsterdam of 30 gallons and in Rotterdam 35. The daily per capita consumption of 400 gallons in Beverly Hills, Calif., is said to be the highest in the country. The water system there is 100 per cent metered, and the use is virtually all domestic. The large per capita use is explained by the unusually high proportion of baths, private swimming pools and lawn areas.

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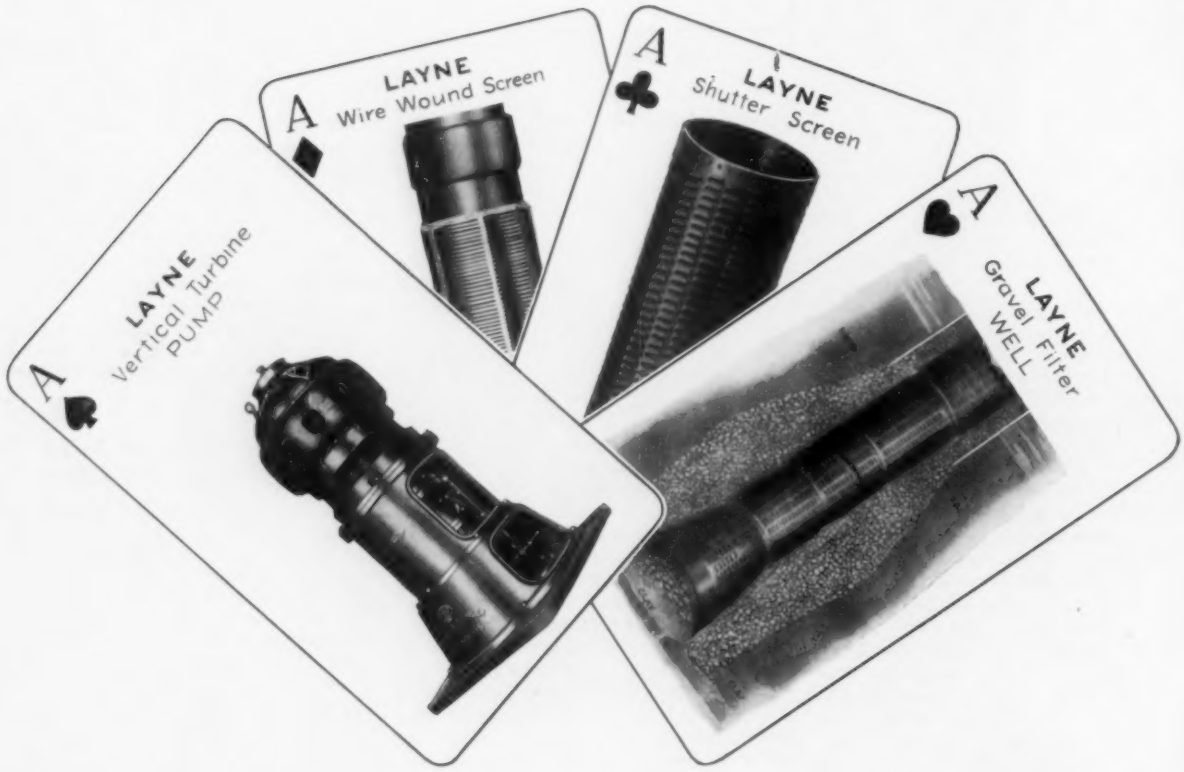

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ELLIS E. SMITH
Mgr., Boise Water Corp.,
Boise, Idaho
(Appointed 1928)

E. SANDQUIST
Supt., Water Department,
Havre, Mont.
(Appointed 1925)

WHO'S WHO IN WATER SUPPLY

Installment No. 19—Portraits of Water-Works Officials of Fourteen Cities in Six States

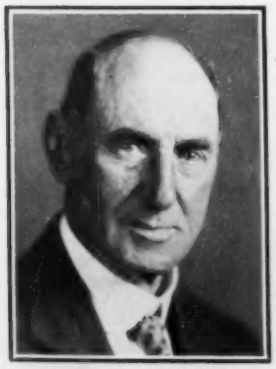
IRVING D. LEE
Supt., Water Works,
Madison, S. D.
(Appointed 1922)

HARRY M. JOHNSON
Supt., Anaconda Water Co.,
Anaconda, Mont.
(Appointed 1913)

ERNEST R. McKNIGHT
Supt., Water Department,
Port Angeles, Wash.
(Appointed 1924)

WILLIAM H. LAWRENCE
Supt., Water Works,
Kalispell Montana
(Appointed 1913)

PAUL E. WELDY
Supt., Water Works,
Great Falls, Mont.
(Appointed 1928)

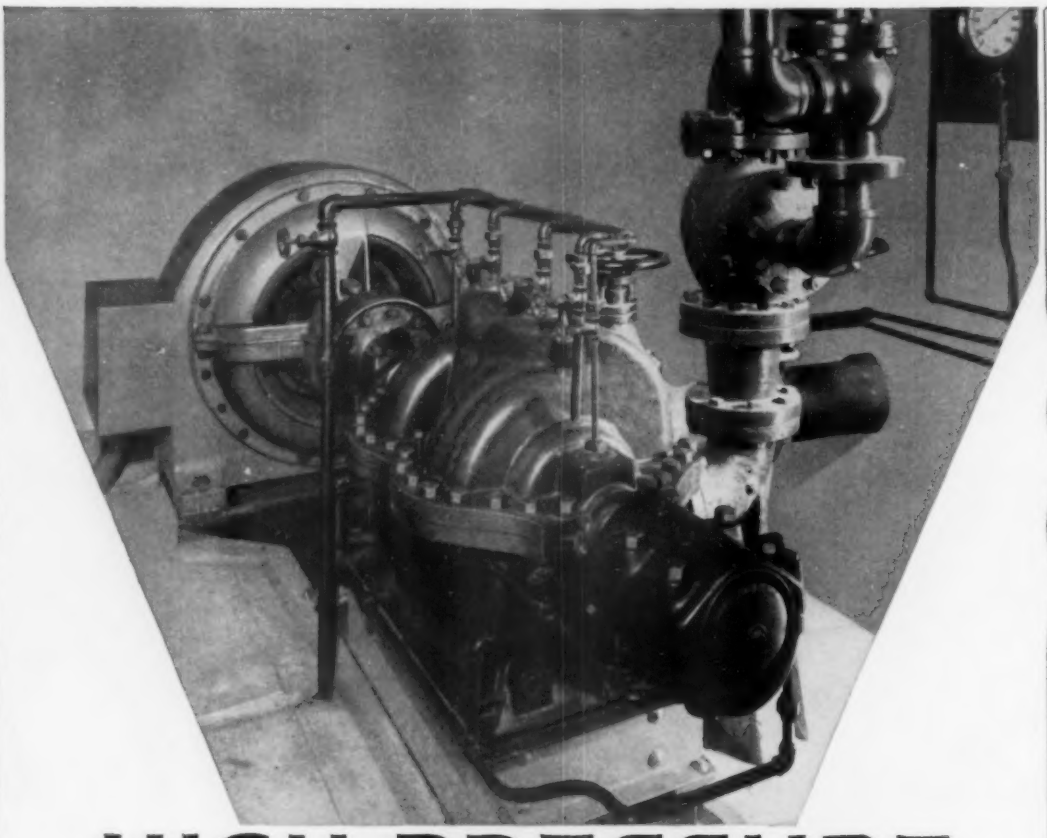


JOHN F. WILLETT
Supt., Water Department,
Billings, Montana
(Appointed 1915)

HARRY R. AUGSPURGER
Supt., Water Department,
Jamestown, N. D.
(Appointed 1914)

JOSEPH M. SCHMIT
Supt., Water Works,
Lewistown, Mont.
(Appointed 1924)

LYLE WOOD
Supt., Water & Light Depts.,
Weiser, Idaho
(Appointed 1915)



HIGH PRESSURE MULTI PLEX PUMPS

Byron Jackson Multiplex Centrifugal Pumps for many years have been regarded as standard equipment for water works pumping where high pressures are required. The 300 h.p. unit shown here delivers 1000 g.p.m. against a pumping head of 300 lbs. per sq. in. This installation is interesting in that the pump is required to operate against a 22-inch vacuum on the suction.

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During July we hope you will remember to mention THE AMERICAN CITY

Exhibits of Rubber Block Paving at Manchester, England

THE advantages and disadvantages of rubber as a material for paving roads were recently discussed at the meeting of the Institution of the Rubber Industry and Rubber Growers Association of England held at Manchester. The only disadvantage reported was that rubber block paving was initially more costly than other forms, and whether it would prove its greater worth in longer life and a saving through the absence of attrition and maintenance charges, remains to be demonstrated. One organization is prepared to lay down demonstration pavements at a first cost of 30 shillings a square yard on approved sites.

It was reported that from actual observation rubber paving reduced vibration from 50 to 60 per cent as compared with a wood-paved road in good order, and noise was reduced to an even greater degree.

An exhibit of various types of rubber road blocks was presented, including some taken up from rubber-paved areas in London and Singapore, where they have been subjected to very heavy traffic. The Singapore blocks show no appreciable signs of wear after six years, and those from London show no wear whatever after two years, although wood blocks laid down at the same time and in the same area have been reduced by nearly ½-inch and ⅝-inch. Photographs taken by means of a vibrograph were shown to indicate the marked power of rubber paving to absorb the vibration of traffic while reducing the noise as compared with wood and stone blocks.

State, County and Town Roads in Minnesota

MINNESOTA now has 33,339 miles of surfaced roads, state and local, according to a summary of the Minnesota Highway Department figures on trunk highway and state aid road conditions and the last available figures on county and town roads. This total is made up of 1,157 miles of paving, 631 miles of macadam or bituminous treated gravel, 25,729 miles of gravel, 5,822 miles surfaced with sand-clay.

This summary shows that more miles of road have been surfaced since the trunk highway system was established than in the previous history of the state. At the beginning of 1921, there were only 15,000 miles of surfaced roads in the state. The state's taking the main roads in the trunk highway system at that time and paying for their improvement and maintenance with license and gas taxes and Federal Aid, left other funds intact for use on secondary and local roads. This has resulted in a general improvement of all classes of roads in Minnesota.

MILEAGE OF VARIOUS TYPES OF TRUNK HIGHWAYS—STATE AID ROADS

Unimproved	....	2,544
Earth, graded and drained	330	1,452
Sand-clay surfaced	281	493
Gravel	4,777	10,791
Macadam or oil or tar-treated gravel	521	110
Pavement	1,023	72
	6,932	15,562

Items and Abstracts *for* ENGINEERING AND HIGHWAY DEPARTMENTS

Reports collected by the United States Bureau of Public Roads on the county roads not in the state aid system and town roads as of January 1, 1928, give the following distributions:

	County Roads	Town Roads
Unimproved	3,235	17,212
Partly graded	1,937	50,048
Graded and drained	445	....
Sand-clay surfaced	1,922	4,825
Gravel	4,203	5,958
Pavement	62	....
Total	10,904	77,243

A Cheap Fill Instead of a Bridge

COLONEL A. J. EDDY, City Engineer of Berkeley, Calif., believes in building for permanence and thereby saving taxpayers money. When the unsightly wooden bridge spanning Cordonices Creek began to show signs of decay, he decided to make a fill across the cut. The fill will cost the city approximately $12,000. It will, of course, be permanent. Vines and shrubs will be planted on its sides to make it a beautiful unit of the city's parks. There will be little or no maintenance expense. The estimated cost of a bridge was $75,000, to which must be added the maintenance and replacement costs.

The fill is somewhat of a cooperative job, for the Key System, whose street cars use the bridge, is furnishing trucks for hauling the dirt, which is coming from the University of California campus where the Ariss-Knapp Co. is excavating for Giannini Hall. The haulers are making good use of the bridge to speed operations. They drive their trucks onto the bridge and dump through holes cut in the floor. A Caterpillar tractor, equipped with a McMillan bulldozer, is moving the earth from under the bridge to the edges of the fill. As illustrated, the tractor also helped to tear away some of the bridge timbers obstructing the progress of the work.

When completed, the fill will be 50 feet wide at the top with a 2½ to 1 slope. Colonel Eddy estimates that 20,000 cubic yards of earth will go into the embankment. Cordonices Creek, now but a very small stream, will run through a concrete pipe. The fill crosses between a public playground and tennis courts. An underground pedestrian tunnel will connect these, and in event of high water will act as an overflow pipe.

Should Ash Collectors Wear Goggles?

WHILE Schenectady has had to lock the door after the horse was stolen, other cities may take pattern and provide their ash and garbage collectors with goggles to protect their eyes from dust. Schenectady has recently paid a compensation award of $3,076 to a city employee for the total loss of one eye. This man was employed in the garbage and ash bureau as an ash collector. One of his eyes became infected from dust from ashes and he lost the sight of that eye.

According to the Schenectady *Union Standard*, Hannibal Pardi, Second Assistant Corporation Counsel, who is in charge of the city's compensation cases, has recommended to the head of the law department that goggles be furnished to the collectors. W. H. Mishler, Commissioner of Public Works, has agreed with the suggestion and is to supply goggles to all of the 150 or 200 workers in the department.

A CATERPILLAR THIRTY TEARING OUT BRIDGE TIMBERS WHICH OBSTRUCTED THE WORK OF PLACING THE FILL WHICH WILL REPLACE THIS BRIDGE ACROSS CORDONICES CREEK, BERKELEY, CALIF.

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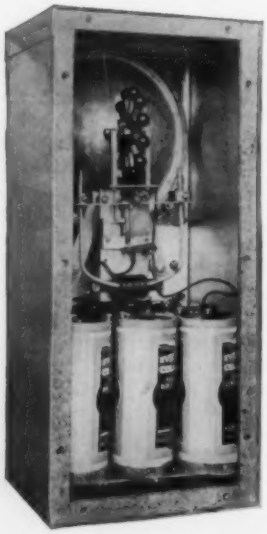

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CURTIS C. LATTIMER
County Surveyor, Franklin, Co., Columbus, Ohio
(Appointed 1919)

HOWARD A. PARKER
County Engineer, Tulsa Co., Tulsa, Okla.
(Appointed 1926)

CHARLES T. BIGGS
County Surveyor, Lorain Co., Elyria, Ohio
(Appointed 1929)

WHO'S WHO IN COUNTY ENGINEERING

Installment No. 7—Portraits of County Engineers and County Surveyors

J. W. LARIMORE
County Engineer, Santa Cruz Co., Nogales, Ariz.
(Appointed 1915)

EARL WATKINS
County Engineer, Licking Co., Newark, Ohio
(Appointed 1929)

NAT H. NEFF
County Engineer, Orange Co., Santa Ana, Calif.
(Appointed 1927)

L. VARNER STINSON
County Engineer, Bryan Co., Durant, Okla.
(Appointed 1915)

RALPH G. TAYLOR
County Engineer, Trumbull Co., Warren, Ohio
(Appointed 1921)

ALBERT L. ALLEN
County Surveyor, Richland Co., Mansfield, Ohio
(Appointed 1923)

HARTLEY L. WHITE
County Engineer, Norfolk Co., Dedham, Mass.
(Appointed 1924)

EDWIN R. BURKE
County Surveyor, Clark Co., Springfield, Ohio
(Appointed 1928)

CECIL R. LEAVENS
County Surveyor, Marion Co., Marion, Ohio
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Items and Abstracts for PARK AND PLAYGROUND DEPARTMENTS

Conserving the Stream Banks for Utilitarian as Well as Esthetic Uses

ONE of the most triumphant discoveries of regional planning thus far is of the economical justification of utilizing creek and river valleys for parkways, boulevards, and walkways. A typical proposal to this end is the one for Lucas County, Ohio, for the region surrounding Toledo. (See page 122.) There scientific thought is being taken that the future expansion of the city out into the surrounding region may not repeat and magnify the ugliness and bad sanitation of creek banks in the old, built-up sections. A. E. Wood, consulting engineer, of Dallas, Texas, emphasized the justification of such planning in a paper on "City Planning as Related to Smaller Cities," delivered at a recent meeting of the American Society of Civil Engineers, in which he said:

"The parkway feature is extremely important because it not only furnishes an adequate storm sewer system but also adds to the beauty and utility of additions, spreads out the population, and reduces the danger from fire. Too frequently this type of regulation is overlooked and subdividers are permitted to fill up dry runs and storm channels, including these in lots and selling to private owners who have no interest in maintaining them as public ways.

"Trees and shrubs are usually found along such channels. These should be preserved as an asset to the city, not only from the esthetic standpoint, but also from the utilitarian standpoint of shade and playground space. Natural beauty-spots can rarely be improved upon except by cutting out underbrush and making them available to the people."

The President of the Park Board Speaks

BALTIMORE citizens point with pride to their beautiful and highly developed park system. They like to remember that their city has one of the country's outstanding recreation programs, for people of all ages and tastes. The many playgrounds for small children are equipped with play paraphernalia of a variety and kind undreamed of by the last generation. The Playground Athletic League is paid $55,000 annually from Park Board funds, not simply to teach all children *how* to play, but to teach them to play effectively and with due regard to the rules of good sportsmanship. There are 25 regulation baseball diamonds, which afford opportunity for 24,000 games during the season; over 100 tennis courts in the parks, where 500 games a day can be played; three free golf courses, and a public course where a season green fee is charged, since demand arose recently for such provision. The Board has spent a total of $350,000 at Broening Park in the acquisition and development of facilities for use of watercraft owners. There are swimming, picnicking, and open-air concerts; there are large-scale affairs in the stadium. Large sums of money and a great amount of forethought have been expended, too, on the creation of beauty for the pleasure of those who enjoy parks passively.

But George W. Cameron, President of the Baltimore Park Board, gave a recent radio address in which he reminded the people of the city of this truth, which is of broader than local application today: namely, that all these facilities may be enjoyed today because of the foresight of former citizens in securing park lands in advance of urgent needs. All the splendid parks, of which Baltimore is so proud, were acquired when they were wholly within, or bordering upon, open country. He added that, adequate as some of the recreation programs sound for ministering to the whole population, and over-developed as some of the opponents of recreation expansion consider them, they fall short of present-day established standards. The 3,400 acres of park spaces, for instance, which the city owns, is 2,165 acres under the minimum standard for the city's population. And this does not take into account the requirements of the future for which the city should take at least such forethought as went into the creation of its own park system.

Los Angeles Recreation Commission Urges Play Areas for All New Subdivisions

"*WHEREAS* public playgrounds equipped for the play of children and made attractive as a community gathering place for people of all ages have come to be recognized as a vital necessity in every residential district in urban communities; and

"*Whereas* suitable areas for playground purposes should be set aside in every residential tract, when the same is laid out, in the same manner as land for streets and easements for public utilities are provided when residential tracts are subdivided, thus making expensive condemnation therefore unnecessary to a later date; and

"*Whereas* experience has shown that public playgrounds properly improved and operated enhance the value of surrounding property in residential subdivisions, and render the tract more desirable as a place of residence;

Now therefore be it resolved that the Board of Playground and Recreation Commissioners of the city of Los Angeles urge subdividers of residential tracts to set aside in the original subdivision maps such areas as will be suitable to serve play and recreation needs of future residents of such tracts."

This resolution urging the setting aside of playgrounds in all tracts being placed upon the market in order to obviate costly condemnation proceedings for such grounds in future, was unanimously adopted by the Los Angeles Playground and Recreation Commission recently.

Sanitation of Pools and Beaches to Be Promoted by More Active Organized Effort

RESOLUTIONS were adopted at the annual convention of the American Association for Promoting Hygiene and Public Baths, at its annual convention in Buffalo, N. Y., May 17-18, broadening the eligibility for membership in the Association, and also providing for the formation of state associations on a basis somewhat analogous to that of the American Water Works Association. The text of these resolutions follows:

"That eligibility for membership be extended to corporate or municipal bodies (city councils, park commissions, etc.), institutions and welfare associations (Y.M.C.A's, etc.), and commercial bathing places (amusement parks, hotels, beaches, etc.), and also manufacturers of equipment used in bathing places (either for therapeutic treatment or otherwise); and that all such members be permitted to have as many representatives as they desire present at our meetings, but each membership be entitled to only one vote.

"That the members of this Association in any state may—with the consent and under the direction of the Treasurer of the Association—organize a state section and cooperate with any state authorities which may desire such cooperation in bringing about a proper regulation and supervision of pools and other bathing places and the observance of regulations or recommendations enacted by state or municipal public health authorities."

Decision was also reached at the Buffalo meeting to continue the investigation of wading pools started by the Association last summer. After obtaining records of practice this summer, the adoption of standards will be considered; meanwhile the Association will "continue to recommend the same standards of purity for the water of wading pools as are commonly observed for swimming pools."

The headquarters of the American Association for Promoting Hygiene and Public Baths are at 2239 South Michigan Avenue, Chicago, the office of Arthur M. Crane, Treasurer. Joseph E. Gichner, M.D., of the Public Bath Commission, Baltimore, is President. The Committee on Wading Pools consists of Mr. Crane and Harry F. Ferguson, State Sanitary Engineer of Illinois, and William H. Cary, Jr., Assistant Sanitary Engineer of the Detroit Department of Health.

Articles of Special Interest

to park and playground officials include "Open Spaces in the Regional Plan," p. 90; "A Memorial Pool, Privately Financed, Hygienically Designed, Municipally Operated," p. 111; "Art Show Emphasizes Unique Idea in Practical Playground Work," p. 136; "'Tschanen's Mudhole' Becomes a Popular Park," p. 146; and "Municipal Liability Concerning Bathing Beaches," p. 161.

For Your Own Satisfaction

make this contrast

REVIEW past elections. Under the old-fashioned paper ballot system hours were wasted in the actual voting. Many votes were thrown out due to improper marking or other violations of the election law.

Polls were crowded. People in a hurry to get home or to the office, yet forced to stand and await their turn. Congestion. Confusion. Tired officials.

Recall the long, weary hours of counting returns —hours of unfolding, reading and checking hundreds of long paper ballots.

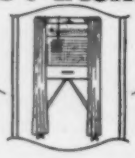
THE progressive community uses voting machines. More than two thousand cities and towns have already installed them.

Their use speeds up and simplifies voting, eliminates confusion and long, waiting lines at the polls. It is impossible for a voter to spoil his ballot. There can be no error in the count because the vote is tabulated mechanically. Returns are available immediately at the close of the polls.

Public officials and voters alike are enthusiastic over voting machines.

Obtain the facts about voting machines and draw your own conclusions. For descriptive booklets, which show also how you can save money by using voting machines, address Department A-10.

AUTOMATIC VOTING MACHINE CORPORATION



JAMESTOWN NEW YORK

Abolition of Personal Property Tax Urged by New York Tax Reform Association

IN the state of New York intangible personal property is exempted from the property tax, and there is also an exemption of $1,000 worth of household and personal effects. The remaining forms of personal property not exempt, in addition to the excess above the $1,000 personal exemption, include merchandise, live stock and farm machinery owned by individuals, and some public service corporation property. For several years bills have been introduced in the New York Legislature to eliminate this tax altogether. In commenting upon these efforts, the annual report of the New York Tax Reform Association, recently issued, says, "The Chamber of Commerce of the State of New York this year reaffirmed its resolution of 1926 favoring abolition of the personal property tax. The Merchants Association of this city has also gone on record for abolition. The revenue from this tax continues to decrease and is negligible; this city levied $8,000,000 last year but collected only $2,000,000, which is less than one-half of one per cent of its revenues, while it received $45,000,000 from the special taxes which have been enacted as substitutes for certain kinds of personal property taxation. . . . Assessments are haphazard and inequitable, and the tax is an outworn relic of primitive social conditions. It persists chiefly by force of inertia."

New York Cities Made Liable for Negligent Operation of Municipally Owned Cars

THE 1929 Legislature of the state of New York adopted an amendment to the state highway act to meet the problem of liability for accidents caused by negligent operation of city-owned cars. The amendment (Section 282-g, Chapter 25, Consolidated Laws) reads as follows:

> Every city, town and village shall be liable for the negligence of a person duly appointed by the governing board or body of the municipality, or by any board, body, commission or other officer thereof, to operate a municipally owned vehicle upon the public streets and highways of the municipality in the discharge of a statutory duty imposed upon the municipality, provided the appointee at the time of the accident or injury was acting in the discharge of his duties and within the scope of his employment. Every such appointee shall, for the purpose of this section, be deemed an employee of the municipality, notwithstanding the vehicle was being operated in the discharge of a public duty for the benefit of all citizens of the community and the municipality derived no special benefit in its corporate capacity.

Referee Reduces Amount of Taxes Assessed on Bankrupt Company

AN interesting case of interference with tax assessments duly levied upon a manufacturing corporation and not appealed from until bankruptcy occurred, has arisen in Passaic, N. J. Accordiing to Joseph Weinberger, City Counsel for Passaic, the property of the Passaic Worsted Spinning Co. was assessed by the city for taxes for 1927 and 1928, and no appeals were taken by the company to the State Board of Taxes and Assessments. Some time in 1928 the company filed a petition in bankruptcy, and a trustee was appointed. The latter made application to reduce the company's city taxes. The City Counsel contended that the referee in bankruptcy had no authority to question the taxes at this late interval, and that he would be usurping the function of an assessor if he should alter the assessment.

The referee, however, decided that he had jurisdiction and could alter the assessment on the basis of evidence produced. He referred to the case of New Jersey v. Anderson, 203 U. S. 483, wherein the United States Supreme Court had construed a portion of the New Jersey bankruptcy act; and asserted that the Court had decided "that where any question arises as to amount or legality of taxes the same shall be heard and determined by the Court with the view to ascertaining the amount really due. And it further holds that the Bankruptcy Courts are not precluded by the findings by boards such as the Board of Assessors or any appellate board in the imposition of taxes in municipalities."

He then proceeded to reduce the tax valuation on the company's real estate from $1,087,750 to $400,000, and on its personal property from $1,600,000 to $500,000, for both 1928 and 1927, basing this action upon the testimony of expert witnesses for the company, whose evidence he considered more creditable than that of the city assessors.

An appeal is being taken by the city.

Items and Abstracts *for* FINANCE AND LEGAL DEPARTMENTS

The Municipal Bond Market

By SANDERS SHANKS, JR., EDITOR, *The Bond Buyer*

FOR well over a year municipal bond prices have been following a downward course. Looking back at the record of sales of city, county and village bonds for March of last year and comparing rates then current with those now being paid on the typical serial loan running for fifteen or twenty years, the contrast is striking. Instead of 4 per cent bonds commanding a substantial premium, the large city, enjoying a preferred credit rating, is finding it difficult to sell 4½ per cent bonds for 100 cents on the dollar. The smaller borrowers, whose bond issues do not appeal to the big institutional buyers, such as the insurance companies, have suffered even more. A 5 per cent coupon is now the rule, rather than the exception, and on short-term loans a fixed rate of 6 per cent is not unreasonable.

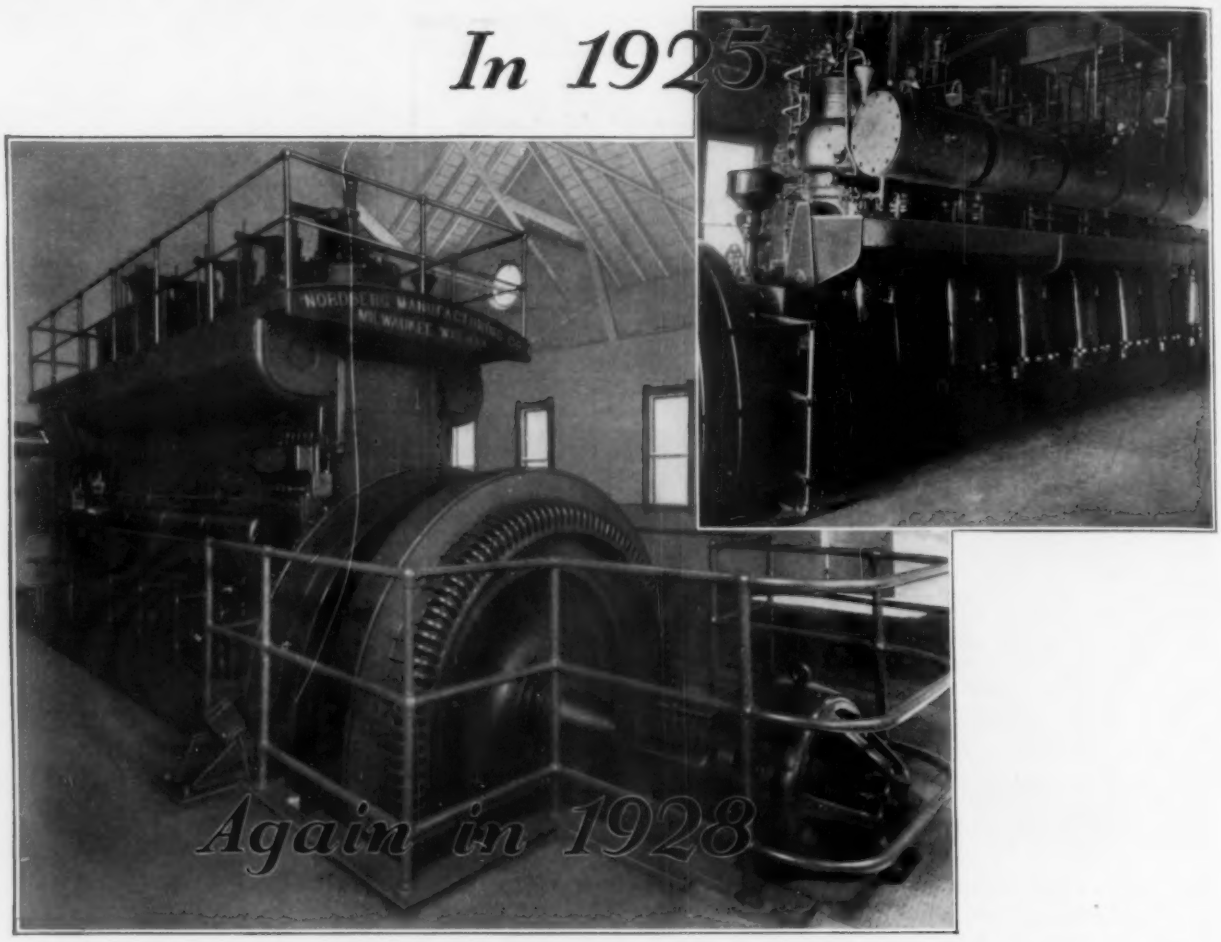
The answer, of course, lies in the credit situation. Nothing has happened to alter the intrinsic value of municipal bonds. They are, relatively, just as high grade, or prime, investments as they were before the Federal Reserve Board started to boost money rates in an effort to curb the stock market.

What city treasurers are most interested in now is the credit outlook for the immediate future. In recent weeks, the close students of the bond market have taken a more encouraging view of the credit situation. It is felt that at last credit is on its fair way to stabilization. The stock market has been less active, thus releasing money loaned on call and easing the rate. Everywhere it has been noted that there is less discussion, less apprehension over the advancing price of money.

The municipal bond market, it is true, has not scored any price advances so far, but when it is appreciated that this is the season of the year when the volume of new borrowing reaches its peak (and this year has been no exception) it will be clear that prices could be expected to do no more than hold their own. A recent canvass of dealers specializing in municipal securities discloses a rather generally held opinion that the bond market has seen its worst months from the viewpoint both of prices and lack of interest among investors of almost every sort. A reasonably active summer, with prices steady at current levels, and a better market in the early fall, is the present prospect.

The following tabulation presents a picture of the level of rates at which states, cities and smaller places, have recently floated new loans of varying sizes and maturities:

Amount	Municipality	Rate (%)	Maturity	Basis
$3,224,500	Albany, N. Y.	4½	1-40 yr. Ser.	4.30
375,000	Burlington, Vt.	4½	15¾ yr. Avg.	4.35
1,000,000	Buffalo, N. Y.	4.40	1-20 yr. Ser.	4.36
10,000,000	Philadelphia, Pa.	4¼	20-50 yr. Opt.	4.415
4,280,000	Maryland	4½	9½ yr. Avg.	4.47
21,000,000	Tennessee	4½ & 4¼	15 year	4.50 & 4.75
3,900,000	Toledo, Ohio	4½ & 4¾	13¼ yr. Avg.	4.572
6,000,000	Cook Co., Ill.	6	1-1½ yr. Opt.	6.60
400,000	Eugene, Ore.	5½	2-5 yr. Opt.	6.69
2,765,000	Yonkers, N. Y.	5½	1-15 yr. Ser.	4.73
1,000,000	Waco, Texas	4⅝	22 yr. Avg.	4.74
170,000	Hempstead, N. Y.	4.90	11¾ yr. Avg.	4.85
316,000	Ridgewood, N. J.	5	9½ yr. Avg.	4.95
25,000	Maricopa Co., Ariz.	5¼	14 yr. Avg.	5.17



More Efficient Operation Permits of a Reduction in Power Rates

In 1925, the City of Rensselaer, Indiana, purchased its first Nordberg Diesel, and again in 1928, when more power was needed, another, but of larger size was chosen. This is but another instance of progressive buying, where additional units have been purchased because of the satisfactory performance which the original purchase gave.

These two Nordberg Diesels have now entirely replaced the old steam equipment and with a material reduction in power cost. As a direct result of more efficient operation, the rates have been substantially lowered.

Where additional power is required, or a modernization program planned, there is a Nordberg Diesel that will meet the requirements. Let us send you Bulletin NY-3

Nordberg Mfg. Co., Milwaukee, Wis.

NORDBERG

Items and Abstracts *for* CIVIC AND COMMERCIAL ORGANIZATIONS

An Organized Attack on the Evils of the County Jail System

AT the annual meeting of the National Committee on Prisons and Prison Labor, held at the home of its Honorary President, Adolph Lewisohn, at Ardsley, N. Y., on June 15, the evils of the county jail system were forcefully presented by Dr. B. L. Scott, Director of the Bureau of Restoration of the Department of Welfare, Harrisburg, Pa., Frank L. Bane, Commissioner of Public Welfare of Virginia and Chairman of the Commission on Crime and Prisons recently appointed by Governor Bird, and others who took part in the discussion. The facts especially emphasized in regard to the common types of county and municipal jails, were:

1. The herding together of innocent people awaiting trial or even held as witnesses with persons serving sentences for crime
2. The fact that the sheriffs who have control of the jails are not competent to train prisoners
3. Idleness
4. Inadequate provisions for handling disease
5. Cost to taxpayers—wasted money where no good is accomplished

It was pointed out that the remedy lies in the establishment of industrial farms for misdemeanants under state control, or, as in Westchester County in New York, under a competent commissioner.

On motion of the Editor of THE AMERICAN CITY a resolution was unanimously adopted by the meeting, urging upon the Board of Directors of the National Committee on Prisons and Prison Labor the necessity for a vigorous campaign to overcome the evils of the county jail system and requesting that a special committee be authorized to undertake the work.

It is expected that the special committee, which has since been authorized by the Board of Directors, will not only undertake to create public sentiment for the abolishing of the present county prison system, and for the establishment of industrial farms, but will also develop plans for buildings suitable for farm colonies in various localities and types of communities with standards for equipment and estimates of cost; and will advise administrators and issue findings as to results of model prison farms and experiments of such character throughout the United States.

Seven Wonders—or Seven Blights or Blunders?

EXPENDITURE of energy by civic-commercial organizations in attempts to hush up public criticism of evil conditions—energy which might better be expended in improving such conditions—is gradually becoming less common than heretofore. But it still persists even in New York, and on June 18 was the text for a fine bit of editorial sarcasm in *The New York Times*.

It seems that President Joseph V. McKee of the Board of Aldermen had been asked by a leading organization to name seven wonders of New York which tourists might be invited to behold, but he had countered by suggesting that it might be more useful to name seven of the least creditable things needing eradication. Here is the *Times*' comment:

HE SHOULD BE REBUKED

"The President of the Board of Aldermen is in danger of being blackballed by the Boosters' Club. Whoever heard of listing a city's 'seven blights'? That kind of thing may have gone in Egypt in the day of Moses, but it is entirely out of order in twentieth-century America. Cry out your wares. If you want your city to be great, call in the press agent. If it has any blights, don't talk about them. Suppress the little items of news that might create a bad impression on the visitor. If you live in Chicago, don't let him see a gunman; show him the parks. If you live in Florida, don't mention the hurricane or the fruit fly or the collapse of the land boom. If you live in Main Street, keep silent about its mud-holes and traffic jams and talk as if it were paved with gold and led to the Pearly Gates.

"It was atrocious, for example, for the newspapers to print the story yesterday about the State Commission and our most famous city prison. Condemns Tombs as Crime Breeder—Prison Called 'An Inexcusable Social Indecency.' If it is an indecency, polite people ought not to discuss it in public. The same may be said about sewage disposal. It is not a nice thing to talk about. What will become of real estate developments if newspaper men are permitted to write articles about dead cats on Long Island beaches or the joys of life in Sutton on the Sewer? Then there is the old Federal Building in City Hall Park. The Merchants' Association is constantly agitating for its removal, and calling it an 'eyesore.' They ought to know better. People will get the idea that New York is full of eyesores, and won't come here any more."

Inter-Chamber Health Contest Is Announced

A NATIONAL health competition to be known as the National Inter-Chamber Health Conservation Contest and open to all chambers of commerce that are members of the Chamber of Commerce of the United States, is to be established by the latter organization.

It will be conducted much in the same manner as the National Fire Waste Contest, and prizes are to be awarded for the winners in five separate groups of cities arranged according to population.

The national Chamber has the following to say regarding the objects of the contest:

"The object of this competition is to assist in reducing economic losses in the United States due to unnecessary illness and death, by means of activities carried on through the organization and thence the leadership of health committees of local chambers of commerce or similar organizations, in cooperation with the official health agencies. It is further designed to give recognition and credit to the many committees which have been active in the past as well as to those which will undertake work of this nature in the future. Where there is no chamber of commerce health committee, the services of public health councils or similar bodies already functioning in the community may well be utilized for this purpose as an agent of the local chamber."

The period of the contest is to be from January 1 to December 31, inclusive, of this year. Chambers will be rated on the present status of health services in the community and on the relative improvement of these during 1929. The three general headings under which the rating is to be done will be: (1) Accomplishments and Sanitary Improvements—50 per cent; (2) Educational and Regulatory Activities—40 per cent; and (3) Reduction in Life Loss from Certain Diseases and Causes—10 per cent.

Details of the contest, including the printed record forms to be filled out, the complete system of rating to be employed and the specific factors to be considered, may be obtained from the Insurance Department of the United States Chamber of Commerce, whose Health Bulletin, No. 8, carries the contest announcement and directions for entrants.

Major Conventions to Use New Orleans Hall Free

FREE use of the municipal auditorium, now being constructed at a cost of approximately $2,000,000, will be granted to major conventions held at New Orleans, it has been announced.

It is believed that this unusual practice will bring additional conventions to the Louisiana metropolis. Among the privileges to be granted free will be heat and lights, the conventions to be asked only to provide necessary janitor service.

The new auditorium will be completed towards the end of this year and may be dedicated as a permanent memorial to the military and naval dead of the city.

Of Interest to Chambers of Commerce

are the city and regional planning articles on pages 81, 90, 98 and 104.

10% Reduction in Price of 1929 PEERLESS Fire Alarm Box

Several months ago the new Gamewell fire alarm box was announced. Since then, the box has met with a favorable reception everywhere it has been seen. The cities listed below and scores of others have already installed or placed their orders for quantities of this box:

Palo Alto, California
Denver, Colorado
Hartford, Connecticut
New Haven, Connecticut
Ft. Lauderdale, Florida
Atlanta, Georgia
Duluth, Minnesota
Detroit, Mich.
Trenton, New Jersey
Poughkeepsie, New York
Cleveland, Ohio
Lakewood, Ohio
Allentown, Pennsylvania
Providence, Rhode Island
Woonsocket, Rhode Island
Dallas, Texas

We have been able to concentrate largely on one standard model without variation, whereas before the variations in fire alarm boxes were numerous and expensive. Consequently we have realized economies and are passing them along to you.

A reduction of 10% in the price of the 1929 Peerless Box (street model only) goes into effect immediately. This applies only when the box is ordered in its standard form without any variation whatever. Any special features will be included if desired, but at an additional cost based upon the nature of the change.

This covers the box with the 18 improvements, without any change in the high quality of the workmanship and materials.

(Write for Descriptive Literature)

The Gamewell Company

Newton Upper Falls, Mass.

"A BOX A BLOCK"

Safety Lesson from Cleveland Hospital Disaster

ENGINEERS of the National Safety Council have analyzed the tragedy which resulted in the loss of over 120 lives in the Cleveland Clinic Hospital, May 15.

They report that the three major safeguards were lacking at Cleveland:

1. *Film storage room should have been on the roof and not in the basement.*

2. *Film storage room should have had automatic sprinklers.*

3. *Non-flammable film is much safer for hospital use.*

Ordinary nitro-cellulose photographic film, whether used for motion pictures, hospital X-ray photographs, or other purposes, is hazardous in large quantities. When heated it gives off gases which are both poisonous and explosive and may thus spread fire through a building as well as suffocating the occupants.

The regulations of the National Board of Fire Underwriters provide that all such films should be kept in a vented storage room, except that small quantities may be kept in vented fireproof cabinets. The regulations further provide that the storage rooms shall be of non-combustible material with self-closing fire-doors, vents to the outer air, and automatic sprinklers, except that the sprinklers may be omitted in some cases where the storage room is located on the roof in such a place as not to endanger other parts of the building and not to involve any probability of injury from the fumes.

Electric lights are to be protected with wire guards or vapor-proof globes; portable lights on extension cords are prohibited; film must be kept two feet away from steam pipes, radiators, chimneys or other sources of heat; heating should preferably be by hot water; and steam heat, if used, must be low pressure, with radiators on the ceiling or adequately screened and steam pipe lines also screened.

The National Safety Council urges that these precautions should receive the immediate attention of every hospital or similar institution storing photographic film, and that the quantity of such film stored in any public building should be kept as small as possible.

Firemen Seek Means of Combating Explosive Fires

MANY calls are being made upon the Department of Agriculture for information on the best methods of combating explosive fires, especially those caused by dust explosions. The average loss resulting from each individual dust explosion has been reduced from $300,000 to nearly $200,000 during the past five years, in those industries studied by the Department.

Nevertheless, the attention of firemen has again been drawn to the peculiar features of these fires by such catastrophes as the recent Cleveland Hospital explosion. Fire loss from dust explosions has been the subject of special study and experiment by engineers of the Chemical Engineering Division of the Bureau of Chemistry and Soils, and they are preparing to give practical advice on methods for fighting these fires.

David J. Price, engineer in charge of the Chemical Engineering Division, is giving addresses and demonstrations on dust explosions at several short courses for firemen being held this summer under the auspices of state universities. He maintains that there are numerous fires in which the liberation of highly explosive gas is a great hazard, requiring different treatment from the usual methods of fighting ordinary fires. Cases in which dust explosions have occurred with disastrous effects after fire started, include a dust explosion in Milwaukee in which six firemen were killed, a spice dust explosion in Cincinnati which caused the death of four firemen, and another Cleveland explosion in an aluminum-bronze factory which injured several firemen, according to Mr. Price.

In addition to its work on dust explosions, the Bureau of Chemistry is active in the campaign to reduce the fire losses in American farmhouses and rural communities, which have reached the appalling total of approximately 3,500 lives lost and $150,000,000 in property losses annually.

Items and Abstracts *for* DEPARTMENTS *of* PUBLIC SAFETY

The Clang of the Fire Bell Finally Aroused Baltimore

BALTIMORE'S experience with no parking during business hours on two important downtown streets is told by Police Commissioner Gaither in a brief special statement to THE AMERICAN CITY, published on page 143 of this issue. How this no parking ban came to be established was told in picturesque language in a recent editorial in *Electric Railway Journal*:

"Baltimore has at least got started in the right direction on parking. It has put on the ban in certain downtown streets during business hours. The circumstances, however, are peculiar—so peculiar that they seem worthy of special attention. Traffic experts have long said that this was a step Baltimore needed to take; the railway officials have insisted that prohibition of parking on certain congested streets was necessary to prevent the convenience of a relatively small number of automobile users from interfering with the rights of all other users of the public streets; the newspapers sensed the evil of parking, and the doughty Mr. Mencken, whose pen drips vitriol when he goes crusading, said in the Baltimore *Sun* recently that the use of congested public streets as free garages is a reflection on the intelligence of modern Americans. But Baltimore remained adamant; that is, the selfish had their way.

"It was the clang of the fire bell that finally aroused Baltimore. Engines racing to the scene of a conflagration were able to get through the streets only after the usual traffic difficulties, but when they reached the fire the way of the crews to the fire plugs was obstructed with parked cars. The firemen had of course long recognized the parked car as an incipient menace. Now it became a real one. As Grover Cleveland used to say, it was a condition, not a theory, that confronted them. They put out the fire, and then they let out a roar that quickly brought action in Baltimore. It is too bad that nothing short of a threat of public catastrophe could arouse the city to exercise its common sense. The menace of the parked car is not Baltimore's alone. It exists in every city of any size."

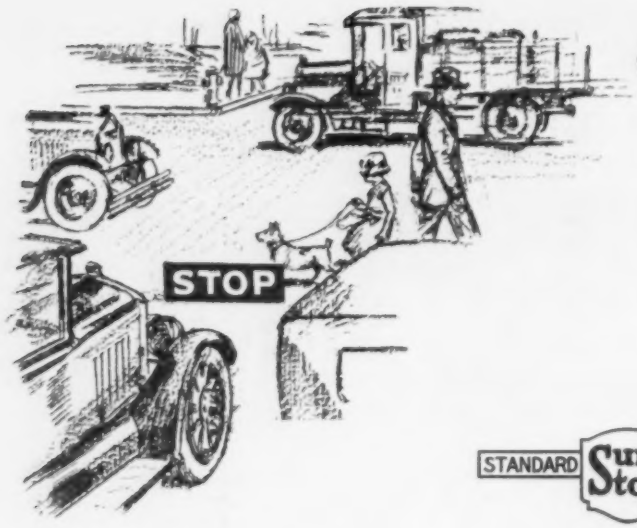
Northwest Fire School Plans Second Session

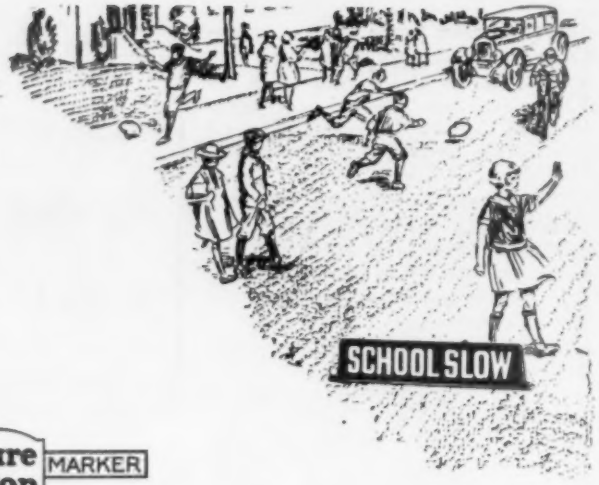
ANNOUNCEMENT was made early in June that the second annual Northwest Fire School will be held in Minneapolis during the week of September 16 under the sponsorship of the League of Minnesota Municipalities, the Minnesota Department of Insurance and the General Extension Division of the University of Minnesota.

Approximately 250 chiefs and firemen from Minnesota, Wisconsin, and North and South Dakota, who attended the initial session last August, were strongly in favor of establishing the school as an annual affair.

Fire-fighting and fire-prevention problems of the smaller towns will be featured in the school program this year. Well-known speakers in the fire-prevention field will speak at the morning lecture and discussion sessions at the University of Minnesota. The afternoon evolutions, demonstrations and first aid work will be conducted at the Minneapolis Fire Department drill school.

Subjects tentatively scheduled for presentation and discussion include: "Rules and Regulations Concerning the Establishment, Maintenance, and Operation of Fire Departments,—Their Value, Provisions for Enforcement and Discipline"; "Administration and Paper Work of the Department"; "Chemistry of Fire"; "The Dangers of Combustibles, Explosives, and Other Similar Hazardous Materials Such as Oil Storage Tanks, Filling Stations, and Tank Wagons"; "Fire Fighting by Modern Methods with Special Emphasis upon Single Dwelling Residences, Small Stores, and Small Flats"; "The Inspection of Buildings, with Emphasis upon Electricity and Wiring"; "Salvage and Overhauling after Fires"; "Problems of Fire Prevention in the Small Town."





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EXPERIENCE is teaching Traffic Officials that the *through boulevard* is the outstanding remedy for traffic congestion. Through traffic on selected arterial streets moves with great rapidity and lessens pressure on downtown districts, saves time of motorist, and reduces intersection accidents to a minimum. No signal for stopping cross-section traffic at *through street* intersections attains the efficiency of Standard Traffic Markers.

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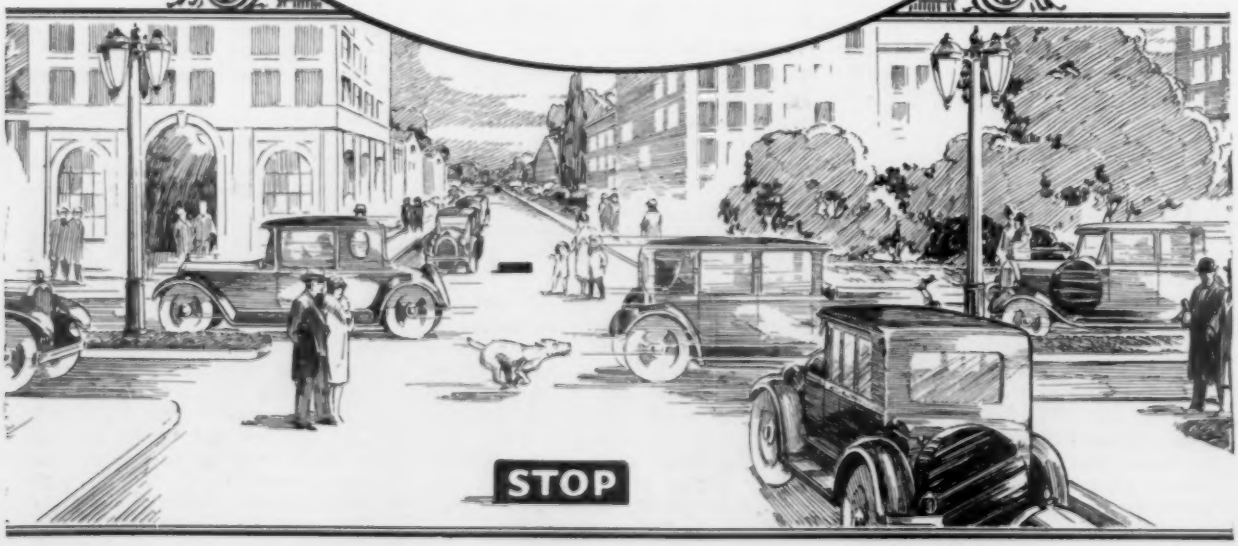


WILLIAM P. COOPER
Fire Chief, Richmond, Calif.
(Appointed 1924)

JOSEPH A. ROBERTS
Fire Chief, Tucson, Ariz.
(Appointed 1921)

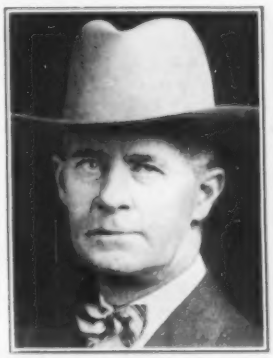
J. ARTHUR GRADY
Police Chief, Pueblo, Colo.
(Appointed 1922)

WILLIAM J. QUINN
Police Chief, San Francisco
(Appointed 1929)

W. J. NEMECK
Fire Chief, Douglas, Arizona
(Appointed 1909)

WHO'S WHO IN PUBLIC SAFETY

A Series of Portraits of Fire and Police Chiefs, Which Have Appeared Monthly Since the January, 1928, Issue



LESLIE GATLIFF
Police Chief, Douglas, Ariz.
(Appointed 1928)

HENRY M. WIRTZ
Police Chief, Bisbee, Ariz.
(Appointed 1922)

W. E. VAN METER
Fire Chief, Bakersfield, Calif.
(Appointed 1919)

L. C. ROGERS
Police Chief, Santa Ana, Calif.
(Appointed 1922)

B. W. NORTON
Fire Chief, Bisbee, Ariz.
(Appointed 1910)

HUGH D. HARPER
Police Chief, Colo. Springs, Colo.
(Appointed 1917)

DAN COX
Police Chief, Richmond, Calif.
(Appointed 1924)

I. B. ENGLISH
Police Chief, Pomona, Calif.
(Appointed 1925)

D. J. NOONAN
Fire Chief, Vallejo, Calif.
(Appointed 1919)

ABOVE
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In addition to what is published in THE AMERICAN CITY, other material, including articles, lists and bibliographies on a wide variety of municipal and civic subjects, appear each year in

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Edition of 1929 now ready, 786 pages

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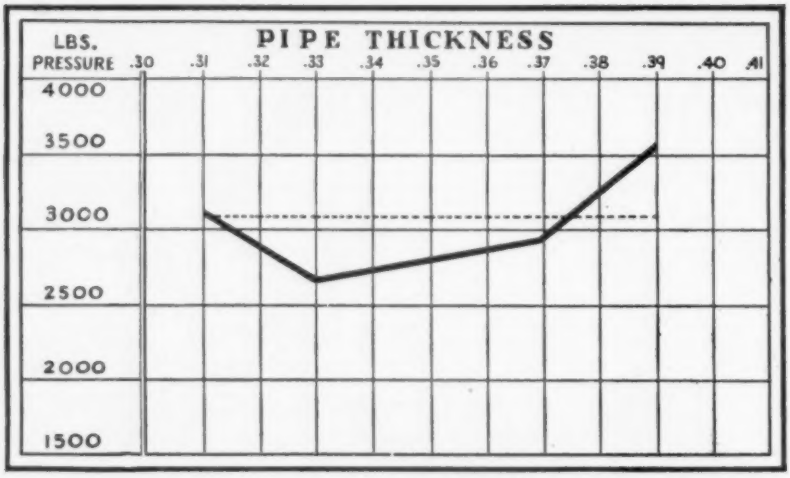
*deLavaud pipe shows *an average internal resistance* of 3090 lbs. per square inch



* The above graph is based on tests performed by a well-known Testing Laboratory. These tests show that deLavaud Pipe is over 25% stronger than good pit cast pipe. The dotted line represents the average bursting pressure of 6" deLavaud pipe of representative thicknesses.

THE superior strength of deLavaud pipe becomes more surprising when one considers the increased carrying capacity which this pipe offers. On the graph shown above, you will note that the average thickness of the deLavaud pipe tested is thirty-five one-hundredths of an inch. Yet, this pipe exceeds by 25% the strength of any pit cast pipe designed for equal working pressures.

deLavaud pipe is made by pouring molten metal into a cylindrical mould which is revolving at a high rate of speed. Centrifugal force holds the metal against the mould and drives out impurities *with a force 40 times greater than gravity.*

Therefore, deLavaud cast iron has a dense close-grained structure and freedom from gas bubbles and impurities. In addition, the quick cooling of the surface metal in the deLavaud water-cooled mould helps bring about the finely divided condition of the graphite in the iron.

So remarkable have been the results of strength tests conducted on deLavaud Pipe that it is difficult to describe them without using extravagant-sounding comparisons. Suffice it to say that the great strength of deLavaud has never been equalled by any pit cast pipe.

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Items and Abstracts *for* MAYORS AND CITY MANAGERS

Plan for Federated Pittsburgh Receives Setback

ACCORDING to the unofficial returns, the plan for the consolidation of Pittsburgh and Allegheny County, Pa., into a metropolitan federation, as described by Rowland A. Egger in THE AMERICAN CITY for June, at page 120, failed of adoption at the election held on June 25. Pittsburgh voted overwhelmingly in favor of the proposed charter, but the necessary two-thirds vote in a majority of the 122 municipalities in the county was not secured.

Important Problems Face New York State Cities

NINE state-wide municipal problems of importance require immediate consideration, Frederick C. McLaughlin, Mayor of White Plains and President of the New State Conference of Mayors, advised city and village officials at the opening of the annual convention of the Conference in Binghamton, June 18.

While several of these pressing issues are peculiar to New York State cities, a few are representative of those confronting municipalities in many other states. Regarding those problems which fall in this more general classification, Mayor McLaughlin made the following suggestions:

Since only a few cities in New York State have an efficient plan for the sale of property for delinquent taxes, he urged that the Conference request the Legislature to enact an optional law providing an efficient tax collection plan. Under this plan, he would permit any city to sell property upon which the taxes have become delinquent.

Many complaints have been recorded about over-insurance against fire loss, and the evils resulting therefrom have been called to the Conference's attention. The President therefore suggested that the Conference study this problem thoroughly and seek the assistance of the State Insurance Department and the National Board of Fire Underwriters.

If firemen are to be trained properly, all municipalities should provide training towers for the men, Mayor McLaughlin contended. He advised the Conference to urge all municipalities to build training towers during the next year so that during the summer of 1930, and subsequent summers, each city may operate a training school of its own, giving both the paid and the volunteer firemen the benefit of more adequate and continuous instruction than the zone schools can.

Many benefits are to be derived from a study by experts of the infant mortality rate and infant welfare work of each city in the state, in Mr. McLaughlin's opinion. To accord this proposal proper consideration, he recommended the appointment of a joint committee representing the State Department of Health and the Conference to work out and put into effect any plan of action which its study of that problem may reveal to be necessary.

The Conference re-elected President McLaughlin, Vice-President Joseph C. Wilson, Mayor of Rochester, Treasurer John Boyd Thacher, 2d, Mayor of Albany, and Executive Secretary William P. Capes. In conjunction with the Conference of Mayors there were held the annual meetings of the fire chiefs; city and village clerks; and city and village engineers' associations.

More Than 1,000 Cities Have Municipal Airports

THE Department of Commerce reports that more than 1,000 cities in the United States now have municipal airports, or plan to construct them in the immediate future.

A few days ago the Department announced the names of 41 additional cities in which airports are planned, including Skagway, Alaska. When the Skagway airport is constructed, it will bring Alaska's airports and intermediate landing fields to more than 50.

Giving Firemen Certain Police Duties Works Well in Cincinnati

THE recent innovation of making all members of the Cincinnati Fire Department police officers also, to assist the Police Department in enforcing traffic regulations and other police ordinances, as mentioned in THE AMERICAN CITY for April at page 5, is giving much satisfaction. City Manager Sherrill in a letter dated June 5, 1929, has the following to say about it:

"I find that the new plan giving police duties to firemen is working out very well; indeed there has been an unusually satisfactory response to their new duties on the part of the firemen. So far as I know, there has never been a complaint from them as to these added duties. Every day there are a number of important cases reported in which firemen have successfully carried out police functions for the general welfare of the city, and in aid of the Police Department. These cases have covered the widest range, from minor traffic violations to more serious misdemeanors and felonies.

"Under the authority given, the firemen can intervene in handling police matters when necessary even on their days off, and this they have done on many occasions, showing their interest in the new responsibilities imposed upon them.

"The addition of these responsibilities to members of the Fire Department creates a law-enforcement organization supplementary to the police composed of as many members as are included in the police force, to say nothing of the great value secured in having the fire companies available to control important intersections throughout the city during the late night hours as an aid to the police in cutting off the escape of criminals. Fortunately, up to the present time there have been no such cases reported in Cincinnati since the order went into effect. This absence of major crimes may or may not be connected with the order for placing these new responsibilities on the firemen, but I feel sure that these instructions have been of a certain effect in discouraging criminals from their operations.

"The plan has not been in operation a sufficient length of time to give conclusive evidence, but from the results we have so far had, there is no question that it is going to be a success, and a very great aid in the enforcement of the law, with an advantage in the morale and loyalty to the city on the part of the members of the Fire Department."

The Glory That May Also Be Our City's

"AMERICA is standing at the dawn of an era of luxury, of productiveness, of the ability to rear monumental edifices and cities such as the world has never seen before. In truth, it is only by the creation of such cities in the future that we may absorb the energy and power of a large portion of our population."

This is the prophecy of the City Planing Commission of Portland, Ore., as voiced in a recent issue of *The-Plan-It*, its monthly bulletin, which devoted considerable space to previsioning "the glory that may be Portland's," in this age of magnificence that has almost arrived, if only appropriate and timely action be taken.

"Let us make our city the most beautiful one in America," is urged. "Let us spend money liberally to increase Portland's appeal to the growing appetite for beautiful and luxurious surroundings. It will all come back in increased population of the kind that makes a prosperous city, for it is people of means that make a city a place of prosperous business, that give employment to the wage-earner. Let us make space and color and grandeur the watchwords of our civic policy, take advantage of the opportunity which nature has bestowed upon us, and bend every effort towards making Portland, Ore., a city such as Rome or Athens might have been had Romans and Athenians had the aid of modern machinery and materials."

Who Is the Youngest Mayor or Village President?

BEAR LAKE, Mich., is a claimant for the honor of having the youngest chief executive in the state of Michigan, and perhaps in the United States. Bear Lake has the village form of government, and its President is Arch Marshall, Jr., who, according to the *Michigan Municipal Review*, attained the age of 21 last September. If any municipality in the United States has a younger mayor or village president, THE AMERICAN CITY would be glad to learn of the date of his birth.

"A much less pumping capacity is needed"

Two 300,000-gallon Horton steel tanks. The one at the left is located in a residential section of Birmingham, Michigan. Elevated tanks should always be located as nearly as possible to the center of demand. The one at the right is in Clearwater, Florida, waterworks system.

"A much less pumping capacity is needed where any considerable amount of elevated storage is provided. The question of the value of elevated storage has been brought to the forefront in the last few years by the erection of elevated steel tanks of large capacity." *From a recent issue of the Journal of the American Water Works Association.*

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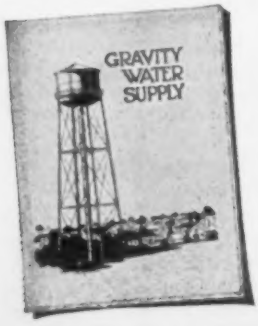
Your water consumption is much greater at certain hours than at others. Suppose the maximum is twice the average. If you pump direct, you must have twice the equipment in service during the short period of maximum demand that would be needed on the average for 24 hours. Obviously, therefore, elevated storage that permits the operation of pumps at a uniform rate throughout the day cuts the required capacity of this equipment in half.



Send for this book!

In addition to savings in the investment in standby equipment, some cities effect additional savings by stopping the pumps during the period of maximum electric power demand, allowing the elevated storage to provide the supply. This practice reduces the cost of all power consumed.

If you are considering any changes or additions in your storage or pumping equipment, let us give you complete data on Horton elevated tanks.

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HORTON TANKS

JULY, 1929
Vol. XLI, No. 1

The American City

443 Fourth Avenue
New York
50 Cents, $4 a Year

A Platform of Progress for Municipalities and Counties:

1. *City and regional planning and zoning for spacious development*
2. *Streets and roads that are well built, well lighted, well cleaned*
3. *An abundant supply of pure, soft, palatable water*
4. *Sanitary and economical disposal of sewage and garbage*
5. *Fire and police departments properly trained and equipped*
6. *Thorough and uniform traffic control; fewer grade crossings*
7. *Plenty of parks, parkways, playgrounds, and swimming pools*
8. *Administrative efficiency and citizenship aid in bringing these things to pass*

A Million Dollars' Worth of Ideas on City and Regional Planning

Recommendations of Nation-wide or World-wide Interest, Comprising Excerpts from the Section on "Problems and Proposals in Perspective," of the Forthcoming Atlas and Description of the Graphic Regional Plan of New York and Its Environs

HALF-HEARTED schemes designed to ameliorate existing conditions may arrest the growth of evils, but cannot cure them. At the same time, no plan can be complete which does not contain practical proposals for dealing with the problems of areas that are already built upon. . . . Even if a perfect development of all vacant land could be achieved in a city, as the result of a plan, it would provide only a partial improvement of its living and working conditions so long as the principal business centers and central residence sections were alowed to expand their building bulks without a guiding plan.

Nevertheless it remains true that the full benefits of planning can be obtained only in those areas where it is possible to prevent the beginning of bad conditions. This is true not only because it is easier to prevent than to cure, but also because it is easier to impose restraints in advance against something being done that will be injurious to the community than it is to get rid of the injury after it is done. Misplanning of vacant land is a primary cause of the evils of congestion and indiscrimnate building which make later planning and zoning so ineffective.

The following premises have been accepted *inter alia* as forming a sound basis for guidance in developing the Plan:

1. *Growth of Population.*—It is essential for public well-being that the per capita standards of health, comfort and safety of the population be raised above present levels to the full extent that harmonizes with true economy, in proportion as the population increases.

2. *Street Circulation.*—It is essential for convenience and efficiency in transaction of business that movement be fast, have the least possible degree of interruption, and have ample space for parking.

3. *Uses of Land.*—It is essential for the places of work and the places of residence to be conveniently related to one another, so as to lessen unnecessary travel and yet to be separated enough so as to secure concentration of industry and business on the one hand, and pleasant and restful surroundings for dwellings on the other hand.

4. *Bulk of Buildings.*—It is essential for the prosperity of the community that concentration of buildings and economic activities should not be greater than clearly desirable for efficiency of industry, commerce and business, which efficiency can only be secured in proportion as open space is maintained for health, within and surrounding buildings, and for movement of traffic to and from buildings.

Those who accept these as reasonable premises will not be misled into assuming, as it is too

The Most Notable Union of Financial Support and Technical Skill

ever devoted to a similar purpose has gone into the preparation of the Regional Plan of New York and Its Environs, the first comprehensive announcement of the findings of which was made at public meetings and in the newspapers during the last week of May.

As mentioned in* THE AMERICAN CITY *last month, more than a million dollars of funds of the Russell Sage Foundation, and seven years of organization, fact-finding and compilation, have resulted in the ten volumes of the Report and the maps whose publication is now nearing completion.

The accompanying article comprises merely a few of the recommendations in a forthcoming volume which are applicable to metropolitan regions generally. While the books and maps have, of course, special interest for municipal officials and civic bodies in the New York region, they will prove to be a mine of valuable information and ideas for all persons everywhere who are seriously concerned with the science and art of regional planning.

frequently done, that increase in population and bulk of building are in themselves productive of wealth, or that increase in land prices based on crowded and unhealthy uses of land is an indication of prosperity.

One of the chief problems in planning is to maintain a proper balance in adjusting the above four things to one another. In the central districts of New York a vicious circle has been created in connection with growth of population, street circulation, land uses, and building bulks, because of failure to recognize their interrelations. Thus, growth in bulk of buildings, paralleled with indiscriminate mixing of uses, adds to transit and traffic congestion; while increase of transit facilities and widening of streets gives new scope for increasing bulk of buildings, for increasing the variety of uses, and for widening the distances between places of work and residence.

In considering what proposals to include in the Plan for securing the object of a better-balanced system of growth, the staff has had to have regard to existing methods of growth, habits and wants. These they could not ignore. Nor could they assume that there would be any revolutionary change on the part of the public in favor of a more ideal system of city development. And yet they have acted on the principle of looking at the problems of the city on the basis of what should be, qualified by what is and can be, rather than in that of projecting present conditions and methods into the future merely because they have the wide assent of public opinion. . . .

Improvement of Rail Transportation

Expectations in more or less authoritative quarters regarding the future development of airplanes seem to have detracted public attention in recent years from the prospect of future changes in connection with rail and water transportation. Increased efficiency of locomotion of every kind may be expected in the next forty years. Ships as well as dirigibles will transport people across the Atlantic more rapidly than before. Improvement in terminals and electrification of trains will tend towards increased efficiency in railroad transportation. The comfort of the railroad will grow relatively in proportion as the discomfort of the highway is increased. It is hardly conceivable that the growth of transport by road will result in making it more restful traveling than an improved electrical service by rail will be. Force of competition will make the railroad companies realize the asset which they possess for traveling over anything but the shortest distances.

There is a prospect of immense developments in road as an auxiliary to railroad transportation that are still undreamed of. For example, it appears likely that the motor-bus will add greatly to the areas within which people may live and yet have convenient access to railroad stations. As the bus services within the wedges that lie between railroad lines develop, commuters will not only live farther from stations, but the environs of the stations themselves will increase in importance as subsidiary centers for shopping and amusement and will stimulate the dispersal of population from the central areas. . . .

Comprehensiveness in Area and Functions

An examination of the field of inquiry covered by the regional survey clearly shows that the regional plan, to fulfill its object, must be comprehensive in regard to the functions and circulation of the area dealt with, as well as in regard to its geographical extent. The failure of plans to achieve adequate results in the past has been due largely to lack of comprehensive treatment of the combined problems of circulation, utilization of land and building development, for an area large enough to enable problems of urban growth to be understood in proper perspective and in their significance and relations.

Air Transportation

The airplane is in such an early stage of development that proposals as to what is needed in the future must differ greatly from what is needed in the present pioneer stage. The scope of the air travel is such as to stir the imagination with its opportunities for rapid and almost unrestricted movement.

As cities like New York, London and Paris have grown up without any provision for air transportation, it follows that anything they can do to provide landing facilities must be hampered as the result of the high cost of providing these facilities near to existing centers. Moreover, the uncertainty as to the extent and actual requirements of the airplanes in the future does not encourage the expenditure of large sums of money that would be necessary to carry out a bold scheme in keeping with the possibilities of air travel.

The form of communication most likely to serve the needs of the airplane are the motor-bus and the motor-car. There is no reason why the landing field should not be at some distance from the center, if the highway forming the approach to it is sufficiently free of obstruction to permit speedy travel. In estimating the cost of providing landing fields, there should be included with the actual cost of the acquisition and development of the land the cost of a speedway connecting the airport with the city. . . .

Whatever the advantage of high buildings, they are likely to prove an obstruction to aerial transportation and to present difficulties in developing airports near to the central areas. . . .

Highways

In the description of the highway system shown on the Plan, it is pointed out that one of the benefits of the Regional Plan is that it presents a completely coordinated and classified system of highways. To have a perspective of such a complete system in an urban region—a system so classified that each part is not only related to the whole but is appropriately designed to function as a unit—is essential as a basis for public expenditures on highway improvements.

It is obvious that several subordinate classifications should be made in city and subdivision plans for the areas intervening between the main highways. Much of the cost which it is necessary to incur to develop a major highway system can be met out of savings which could be made as a result of making minor highways fit in with actual needs instead of with some hard-and-fast rule based on the assumption that every street must carry through traffic. The great majority of local streets are too wide for the limited purposes for which they are used, or likely to be used. Pavements in the majority of local streets in residential neighborhoods should be narrow and lightly constructed, and so planned as to discourage through traffic. In business areas the provision of alleys and front parking space on private property would be a more equitable way to provide facilities for standing cars and trucks used for trading purposes than by adding to the width of highway and street pavements. . . .

Uses of Land Fronting on Main Highways

One of the questions of relationship between ways of communication and land uses that has raised a serious problem for communities and owners of land is that of how to utilize to the best advantage the land fronting on new arterial highways. In the description of the Regional Plan reference is made to the fact that wide parkways have the effect of promoting residential development along their frontages and the concentration of business at important intersec-

tions only. But whatever is done to acquire sufficient land to build new parkways will not solve the problem of how to utilize the enormous frontage of improved public highways that will be created in any event.

The tendency has often been to assume that these frontages will be needed for business uses and to leave them unrestricted in platting or zoning. The result has been that many fine tree-lined roads have become spotted with filling stations, repair shops and billboards. They will never become good business streets, as there is not enough business to fill more than 20 per cent of their frontages and they have become very nearly ruined for residence uses.

The major traffic streets represent about 25 per cent of the total street mileage of a community. Assuming the frontages on all traffic streets to be occupied by business and all the other street frontages to be occupied by dwelling on 50-foot lots, and assuming 5 persons per dwelling there would be 2.5 feet of business frontage per person, which is from two and one-half to five times the amount of business that can be supported. Figured another way, the use of all major street frontage for business would devote 25 per cent of the whole area to business; this gives at least five times as much business area as experience has shown to be actually used for business.

Nor is it valid to assume that all of these frontages along traffic arteries that cannot be absorbed by business will be needed for apartment sites. In a suburban community it is unusual to find more than 12 per cent of the population in apartment houses. To house 12 per cent of the community in apartment houses will surely not require more than 4 per cent of the area. If we allot 5 per cent of the community's area to business and 5 per cent to apartment houses and segregate all business and apartments on the major streets and boulevards, only 40 per cent of these frontages will be so utilized.

In any suburban community, therefore, it is quite clear that we must assume that at least 60 per cent of the frontage along main traffic streets, boulevards and parkways must be devoted primarily to private dwellings.

One of the problems in neighborhood and community planning is to find ways in which these traffic frontages not needed for business may be utilized for residence purposes, either dwelling or apartment houses. The ideal solution is to provide either a parkway consisting of a road in a strip of park land, or alternatively, where a parkway is not feasible, a wide boulevard with service roads and broad planting strips. . . .

The Causes of Congestion

The causes underlying congestion in New York are in combination: overbuilding on the land; defective distribution of uses of land and buildings; and ill-balanced arrangement of transport and transit facilities and streets. Each of these things may separately cause some forms and degrees of congestion, but it is where all three are present that congestion is worse. A skyscraper city may have less street congestion than one with low buildings, because of the latter having the more defective arrangement of streets and transit facilities. An area may be overbuilt, but if its business functions are perfectly arranged so that they can be carried on with the minimum of travel, it may be less a cause of harmful congestion than one which has less building but more defective arrangement of functions. The same reason, namely, the presence of three intricately related causes, underlies the reason why street widening by itself is not a remedy for traffic congestion, and haphazard decentralization is not a remedy for population congestion. In the first case all the advantages of street widening may be lost if the uses and bulks of buildings over a wide area, and not only those adjoining the street, are not adjusted to the street system. In the second case, all the advantages of a more open as against a crowded location, may be lost because bad distribution of uses and transportation facilities in the open area results in changing the place and character of congestion and not in relieving it.

Congestion and Wasteful Scattering Can Both Be Prevented

Under average conditions a community diffuses itself over as large an area with an ill-balanced combination of congested and sparsely built areas, as with a well-balanced arrangement of uses and densities. If the plan anticipates what is reasonable and proper in development and suggests methods of preventing bad forms of growth, it enables the community to save large sums of money and to avoid disorder and inconvenience, but actual distribution over large areas will not be greatly different in the one case from the other. It will differ only in the quality of its parts, according to the wisdom or lack of wisdom of the community in regulating its growth. With careful planning, congestion in one place and wasteful scattering of buildings in another place can both be prevented.

To the superficial observer the narrowness of streets or highways appears to be the sole or primary cause of congestion. Probably it is the prevalence of this view that is responsible for so much effort being directed to the widening of the highways and so little to removing the other causes of congestion. Seeing the streets congested, it is natural in the absence of studious enquiry to assume that the reason they are congested is that they are not wide enough to serve the buildings fronting them together with the needs of through traffic. But it will frequently be found that cities with wide streets are as congested, in proportion to building and population densities, as cities with comparatively narrow streets; and, moreover, that widening streets does not in itself, except for very short periods, lessen congestion. It is apparent that doubling the width of a street, or double-decking it for the same width, will not lessen congestion if the traffic use is doubled soon after the increased capacity is provided. And so long as the street system (apart from widths) is badly planned and is combined with overbuilding and an ill-assorted arrangement of industry, business and residence, no widening of streets can do more than temporarily relieve congestion. Indeed it may increase it, if the widening is made the excuse to increase the overbuilding and further extend the disorderly arrangement of functions.

The financial section of Manhattan is not more congested than other parts of the island that have much lower buildings and wider streets on the average—among the reasons being that it carries on a group of closely related business functions, has no through traffic and has transit facilities radiating in every direction. In this and other sections it might be, and indeed has been, claimed that congestion is the result of too narrow streets. If, however, the streets could talk, would they not disclaim responsibility, for were they not in existence before the buildings? This being so, should not the buildings have been adjusted to suit the existing street widths, or the street widths changed to suit the buildings before they were erected? We see then that congestion is not caused by any one thing—such as narrowness of streets—but by the lack of adjustment of all forms of circulation to land uses and densities. . . .

Centralization and Decentralization

As pointed out in the Regional Sur-

vey[1], all community groupings are centers and all urban growth a form of centralization. Therefore the use of the term "decentralization" is a misnomer unless the intent behind its use is to entirely break up compact communities however well planned and arranged. In centralization we may have a desirable as well as an undesirable degree of concentration. What is needed is to arrest it from reaching an undesirable degree or quality in relation to industry or residence or business. To do that, an indiscriminate process of so-called "decentralization" will be of little benefit. What appears to be wanted is:

1. Diffused re-centralization of industry with the objects of lessening the density of congested centers and of creating new centers.
2. Diffusion of residence into compact residential neighborhoods throughout the whole urban region, integrated with the industrial sections so as to reduce distances between homes and places of work.
3. Sub-centralization of business so arranged as to provide the maximum of convenience to residents.

We have to keep in mind the three processes, for the reason that widely distributed diffusion of industry is less desirable than the re-centralization of industry in well-planned industrial sections; decentralization of residence in the form now existing, with its increasing "friction of space," is less desirable than well-arranged diffusion of residence in all areas; and diffusion of business in isolated units is less desirable than the creation of business sub-centers, as a means of lessening centralized congestion. They are referred to here in the above order because industry (including major business or commercial activities) should be regarded as preceding residence, while residence has to be established before retail business, in the course of development. . . .

Diffusion of Residence

The desirable diffusion of residence is that inter-penetration of all parts of the Region that brings the population in convenient contact with employment and education centers and recreational opportunities, subject always to the maintenance of a healthy density of building on each acre of land. To attain this diffusion it is essential that efforts should be made to improve the conditions of housing accommodations in the areas already built upon, as well as to prevent the recurrence of bad conditions in new areas. One of the two ways to counteract the tendency to separate homes and places of work is to make housing more wholesome in its condi-

[1] Regional Survey, Volume II.

Where Transit Facilities Fail

Perhaps the most prominent instance of the futility in attacking the problem of congestion in one aspect alone is the consequences that have attended the development of greatly extended and more rapid transit facilities as a means of relieving congestion. These facilities have temporarily relieved congestion, but in the long run create new forms of congestion that seem to make the remedy worse than the disease. Because of failure to deal with these factors already mentioned, and to consider them together, the situation is such as to give rise to responsible statements that all the money and effort being expended are bringing the city no nearer a solution.

If we could conceive a condition in which a great and wealthy city had maintained adequate and self-sustaining transit facilities to meet its needs and had planned these facilities in harmony with a combined zoning and street plan that permitted free movement of traffic—outside of abnormal peak hours—and which by these means sought to obtain for its citizens the advantages of concentration without the disadvantages of congestion—then we should have a city with ample reserves of funds to carry out whatever plan was needed to give healthy and convenient facilities to its inhabitants.

Owing to the immense cost of maintaining the equilibrium between transit facilities and population growth, it is wholly improbable that New York and other adjacent communities can continue to develop rapid transit lines without the aid of both benefit assessment on the areas served and an adequate fare to pay for the cost of the service. The contribution from assessment will be needed to lessen the burden to the traveler, and the charge of an economic fare will be necessary to keep the assessment within reasonable and enforceable limits.

tions in the central areas; the other being, as already indicated, to promote the movement of industries into well-planned suburban and rural areas. These two questions are fully dealt with in the Regional Survey.[2] Their solution depends on the action of the city and village governments in simultaneously remodeling residential areas in their crowded centers, and in controlling new developments in accordance with comprehensive plans and adequate building codes in new areas. The building of new satellite towns on the lines recommended in Volume II is the most certain way to secure the benefits of combined industrial dispersal and healthy diffusion of residence. . . .

Planning Lessens Necessity of Extension of City Boundaries

As planning of towns lessens the necessity of incorporating new village areas, so, on the other hand, cooperative planning between adjacent cities and towns lessens the necessity for extension of the city boundaries by inclusion of adjacent areas of towns or villages. Unless the areas of towns that are adjacent to cities and villages are planned, urban growth outside the city or village boundaries may take place in forms that do not harmonize with, and may be injurious to, the central community. Some of the worst developments in the Region have taken place where urban fringes of growth have extended into areas which are predominantly rural in character and where the government is adapted to the rural conditions.

Many schemes for extensions of cities have their chief justification in conditions that could not exist if there were cooperative city and town planning. Such schemes are usually resisted by the outside communities and, even when made possible by their consent, impose heavy burdens of cost on the city that make the consolidation of questionable value. Thus, a well-coordinated planning program can remove the necessity of setting up new incorporated areas of small size within a town, and, obversely, the necessity of interfering with satisfactory incorporated units of area adjacent to city boundaries. . . .

Cost of City Planning

With regard to the cost of carrying out the proposals that can be incorporated in city and village plans, it is important to note that the parts of a plan that involve spending money on unremunerative enterprises are more limited than is usually supposed. Some parts, i. e., those relating to railroads, transit lines, and other public utilities, should

[2] Regional Survey, Volumes VI and VII.

be made to pay for themselves. Other parts, i. e., those relating to zoning, controlling the platting of land, or similar measures that deal with restriction of abuses of property and with the protection of health, safety and general welfare of the community, if reasonable in the eyes of the courts, may be carried out without financial outlay other than for the small extra cost of administration. It would be possible to limit a plan to remunerative improvements, plus provisions which regulate traffic, platting and heights, densities and uses of buildings in accordance with the police power, so that it would contain nothing that involved public expense on construction. A plan so limited would be of immense value in promoting public well-being, and although costing little, would probably add indirectly to public revenues. All authorities that are without means to make expensive physical improvements should have such a plan prepared, and may by doing so save themselves from having later to undertake expensive projects of a remedial character. Financially unremunerative projects, which are too often regarded as the be-all and end-all of a city plan, are practically limited to:

1. Proposals for constructing new highways or streets, diverting or widening existing highways or streets, and incidental purchase of private property and reconstruction of buildings.

2. Purchase of land for parks, parkways, playgrounds, etc.

3. Erection of public buildings and related improvements.

A city plan may or may not contain proposals in respect of such matters. Because the plan treats these and other features comprehensively and forecasts the needs of the community for thirty or forty years ahead, it will appear, on the surface, to contain suggestions that involve great additions to the normal expenditures of the community. But this is not so. The existence of a plan, however elaborate or farseeing in its proposals, does not impose any obligation on the community to spend more money than it has to spend in any case to meet its normal requirements. On the contrary, it may be that the plan will indicate directions in which expenditures that would seem to be necessary in the absence of a plan would really be wasteful; and also, the plan may give the community guidance as to the order of importance and character of treatment of improvements. Economy will be the result. . . .

Deficiency of Open Spaces

Failure to plan has meant failure to provide an amplitude of open space to meet demands for recreation. . . .

In these days when the hours of leisure are on the increase, and the spreading tentacles of the city are increasing the distances of the homes from the country, a much larger percentage of well-distributed public park is a real necessity. Want of planning has been an important factor in the failure to meet this necessity. President Hoover has pointed out that this is not merely a matter of giving more joy in life by means of recreation, but of helping the nation and the city to battle against immoral forces. . . .

The acquisition of land for parks does not necessarily mean that large sums should be spent on their development—and much money that is being devoted to artificial improvement of park areas and construction of travel through them would be better spent in buying land. Natural beauty may be destroyed by extravagant schemes to substitute artificial for natural beauty. . . .

Must Our Fine Highways Be Bordered by Bewildering Signs, Tawdry Buildings, Weeds, Waste Paper and Old Cans?

An Appeal Made Over the Radio June 3

By RAY LYMAN WILBUR
SECRETARY OF THE INTERIOR

WHEN Daniel Boone made his celebrated trip out to the wilds of Kentucky he must have gone through a magnificent forest as he followed the game and Indian trails. He traveled at a rate slow enough to enjoy the green fields and the clear streams, the beautiful animals and the flashing birds, the bright flowers and the gay butterflies. We can understand why he brought back those glowing tales which stimulated the great migration over the mountains to settle the Ohio River country.

Now a traveler speeds along on the railroad or on a fine highway and often is more impressed by the ugly back yards, the smoke-stained shops and factories, the turbid rivers and the cheap frame we have built around our highways than by the beauty of the landscape. The great forest is gone. In some places we are trying to get it back again. But nearly everywhere there could be beauty of plant and tree and attractive homes and fertile farms. In many places there is great charm, but the buildings and other things near the highways block the vision.

It is like having a cinder in your eye. Even the Royal Gorge is disappointing to the man busy with something in his eye. America is so beautiful, but man has done so many things to it that it often looks its best after a fresh fall of about six inches of snow. We have been in too big a hurry to cut things down and to cut them up, to build fast and without much thought and to make money with a rush.

We now have settled up the whole country from shore to shore and can now quietly go about the task of making the most of what we have left and of building for the future. We can afford to spend some time and effort in making things look better. Why not stop living so much of the time in the midst of bewildering signs, tawdry buildings, weeds, waste paper and old cans? There is a movement on for attractive wayside stands, harmonious with their natural surroundings. Trees are in the nurseries ready to plant, flower seeds are cheap, exercise with a hoe is just as healthful as golf, and your neighbor can enjoy your garden with you if your hedge is not too high.

For a Beautiful America

Our country has become our common possession from the standpoint of beauty or lack of it. A little gasoline takes us wherever the roads go. If we can all get interested in a beautiful America we will become a different people and we can all enjoy again those natural charms that quietly but effectively influence our character and thinking. I am afraid we will have to expect most in this direction from our children. Too many of the old folks have become accustomed to disorder and grime and cheap junk architecture. The children of today have to live in the world of tomorrow and they might as well work to make it more livable.

The New York Art Center, together with the Better Homes of America and a number of other local and national organizations, are interested in developing a watch-word or a slogan which will make us all think of what our country should have in the way of beauty, for only by thinking and acting can we have our eyes filled with beauty, our minds with great thoughts and our hearts with happiness.

Aerial Police Unit Starts Operation in New Jersey

THE aviation police squadron of Bergen County, N. J., took to the air for active service a few weeks ago when more than 3,000 persons gathered for an inaugural program at the Teterboro Airport, Hasbrouck Heights, N. J.

Chief Peter J. Siccardi of the Bergen County Police took formal charge of the unit, which consists of himself, Major Clyde E. Pangborn, Captain Hugh Wells, and Lieutenants Walter Jones and Leon Allen. Each of these officers is an expert pilot and has served with aircraft manufacturing concerns.

The aerial unit, believed to be the first of its kind in the East if not in the entire country, was authorized a few months ago* by the Board of Freeholders of Bergen County at the request of Chief Siccardi. The latter is known as the "flying policeman," because of his frequent flights over the highways in the vicinity of the Teterboro Airport to direct automobile traffic on special occasions. A Fokker biplane was presented to the unit at the inaugural exercises by the Wright Aeronautical Corporation, and three small commercial planes are at its disposal through the courtesy of the New Standard Aircraft Co.

AIR POLICE PLANE IN BERGEN COUNTY, NEW JERSEY

Photographs by courtesy of Newark Evening News

AIR POLICE UNIT OF BERGEN COUNTY

In accepting the Fokker plane, Chief Siccardi announced that it would be the duty of the unit to inspect all aircraft making their headquarters in Bergen County, to insure their good condition and to make certain that the pilots comply with the standard regulations. Planes which fly low or violate any of the Department of Commerce regulations will be forced down by the aerial police and penalized. In addition, the unit will be ready for emergency duty requiring an exceptionally rapid trip to a scene of disorder or crime.

Following the inauguration ceremonies, the police pilots assumed their places in the planes and took off for service.

* See THE AMERICAN CITY, April, 1929, page 21.

Virginia Realizing Plan for System of Airports

VIRGINIA represents a conspicuous example of what can be done by a state to encourage aviation development through a system of state-wide airports, according to a statement made by the Guggenheim Fund for the Promotion of Aeronautics.

By this summer, 25 airports will have been established throughout Virginia by the joint action of the state and municipalities, the Guggenheim officials announce. All the sites have been selected in cooperation with the Department of Commerce, and authorities in each instance are attempting to obtain sufficient property to develop the fields in accordance with the highest rating. Construction in some cases, of course, will be below the highest specifications until additional funds are available.

The state authorities are reported to have received enthusiastic cooperation in every locality and have been unable to satisfy all requests for assistance. As a feature of the joint program, the State Highway Department's equipment has been utilized without any cost to the various municipalities, except the purely operating expense; and the services of the Department's engineers have also been given without charge to any community. All the fields have been conditioned with state aid and under state control, the state requiring that the airport be either purchased or leased by the cities for a number of years with the privilege of renewal.

The Guggenheim Fund states that this work has been done as a result of the foresight of Governor Harry F. Byrd, who sponsored the appointment of the Virginia Aircraft Committee in 1927 to outline a plan for airport development. This committee, concurring in the opinion of the Guggenheim Fund that a nation-wide system of landing fields is essential to the proper growth of aviation, emphasized in its report that "in a few years the municipality that lacks a landing field for airplanes will suffer in prosperity and esteem.

"We are convinced that a carefully selected chain of airports, established in or near all cities and the more important towns of the state is essential to meet the needs for landing of the many planes now in constant use, and to care for the great increase in the near future."

A Sewage Disposal Plant for a New Jersey Borough

By GEORGE W. FULLER
Fuller & McClintock, Consulting Engineers, New York City

THE borough of Tenafly, having about 5,000 population, is a residential suburb of the New York metropolitan area located fifteen miles north of Jersey City and on the west slope of the Palisades. It is drained by Tenakill Brook, which is a tributary of the Hackensack River above the dam of the Hackensack Water Co., which supplies water to Tenafly and numerous surrounding communities.

Previous to the construction of the present sewerage system, liquid wastes were disposed of individually in cesspools, and while several reports had been received relative to sewering the borough, and the matter had been under discussion for many years, no definite step was taken until the construction of the Fort Lee bridge over the Hudson River was assured.

The construction of this bridge will greatly facilitate transportation in the metropolitan area and it was realized that Tenafly would not derive its full share of the benefits unless it could offer sewer facilities to prospective buyers. Early in 1925, engineers were retained to study sewerage and sewage disposal facilities for the borough and to recommend a plan.

A GENERAL VIEW OF THE TENAFLY SEWAGE TREATMENT WORKS
At the extreme left is the office and administration building, then the clarifiers, and at the right the glassed-over sludge drying beds. In the foreground are seen the sand filters for the sewage effluent

Three Possible Outlets

Because of the unique position of the borough in regard to the watershed, three ultimate outlets were available—into tidewater to the south, into the Hackensack River below the water-supply area to the west, and into the water-supply area within its own limits.

Studies were made to determine the ultimate cost and feasibility of utilizing each of these outlets, taking into account the degree of purification required for each, construction and maintenance cost of the required structures, possible delay, and features not lending themselves to strict cost analysis, such as joint operation of sewers and plant with other communities, and in one case the popular reaction of draining the treated sewage into the water-supply basin.

The outlet to the south would require a pumping-station, a long force main and an outfall sewer through a larger neighboring borough, and a partial purification plant so arranged as to allow of the addition of secondary treatment in the future.

This plan was alternated with the possibility of the neighboring borough's becoming part of the project and using the purification plant and part of the outfall sewer jointly with Tenafly. The advantage of this plan and alternate was the disposal of the sewage outside the borough limits. The disadvantages were high first cost, delay in acquiring rights-of-way, and possible litigation if a joint project were attempted. The disadvantages, coupled with the fact that Tenafly would be the junior partner in the combination, practically removed this plan from consideration.

The plans contemplating an outlet to the west or an outlet into the water-supply reservoir were practically the same, as the degree of purification required by the State Board of Health would be about the same; the only difference being that in the first plan an outfall sewer would be constructed to by-pass the water-supply reservoir.

While it was expected that the Hackensack Water Co. would assume the construction and maintenance cost of this outfall sewer, this cost would in reality be carried by Tenafly as reflected in higher water-rates and would delay the completion of the project. Analyzing the first costs and capitalized operating costs, it was found that the last project was cheaper by $130,000, or, in other words, that Tenafly would have to pay $130,000 to keep the plant effluent out of the water-supply. This led to the adoption of the project

A VIEW OF THE AERATING TANKS AT THE TENAFLY SEWAGE TREATMENT PLANT, SHOWING THE DORR CLARIFIER AT THE EXTREME LEFT

embracing a collection system with an activated sludge plant draining into Tenakill Brook.

Plans were drawn and construction started late in 1926. The plant was designed to treat 750,000 gallons of sewage per day, which on the basis of 100 gallons per capita per day allows for a 50 per cent increase in population.

On account of the contour of the borough, it was necessary to pump all the sewage at the plant so that the sewers could be placed low enough to serve the property and so that the plant would not be affected by high water in Tenakill Brook.

Type of Treatment

Treatment consists of a bar screen to remove the coarse foreign material such as rags, blocks of wood, etc., followed by a revolving and self-cleaning Tark fine screen having 1/16-inch slots. This preliminary treatment is followed by centrifugal pumps which raise the necessary amount of return sludge in addition to the sewage into the aeration tanks.

These aeration tanks, constructed in two units, are each 10 feet deep, 12 feet wide, and 86 feet long. They retain the mixture of sewage and sludge for four hours while compressed air is admitted through porous silica plates along one side of the tank. The rising stream of air keeps the tank contents in motion, allowing the sludge solids to sweep the sewage clear of colloidal matter and keeping alive the culture of bacteria which changes the characteristics of the solids so that they readily settle in the clarifier tanks.

The clarifier tanks also are built in two units each 20 feet square and 10½ feet deep. Here practically all the solids settle out and are drawn to a central outlet by Dorr Thickeners and allowed to flow back to the incoming sewage or be further dewatered and disposed of.

The clear water is drawn from the top of these tanks and periodically flows onto and through five sand beds, each 72 feet by 185 feet, which remove the remaining solids, and the water coming from the underdrains is finally chlorinated.

The fine screenings are ejected to three underdrained and covered compost cells, where they are allowed to drain and rot. The sludge from the clarifier tanks not required for recirculation is drawn onto sand beds having a glass housing, where it drains and partially dries, leaving a cake which is easily removed and which at present is being buried on the plant property.

Two General Electric centrifugal compressors are provided to furnish the air required by the process. These, together with the screens, pumps and chlorine feed machines, are housed in an attractive brick building having a toilet, small office and laboratory.

The aeration tanks and clarifiers, which stand for the most part above ground, are built of concrete with a brick veneer corresponding to the main building.

Minimum Labor Required

The plant is operated by three men working on eight-hour shifts, with the addition of a laborer who removes and buries the excess sludge. The operators keep a full set of records and make the simpler analysis of the sewage as it passes through the plant, to guide them in its operation, and report weekly to the Commissioner of Public Works. In addition to this, the borough has semi-monthly bacteriological examinations made of the effluent by a chemist, and the quality of the effluent is periodically determined by the water company.

The purification accomplished since operation was started has at all times been exceptional. The effluent is clear and sparkling, with extremely low bacterial count. In fact, the excess chlorine carried by the effluent has reduced bacteria in the creek water by 98.7 per cent, and the plant has improved rather than hurt the water-supply.

Building a 150-Mile County Bond Road System

By F. S. PARRIGIN

ENGINEER, FAYETTE COUNTY BOND ROAD SYSTEM, SOMERVILLE, TENN.

FAYETTE COUNTY, TENN., is in the midst of a road program which embraces the construction of about 150 miles of improved roads to be known as the County Road Bond System. The county voters passed favorably on two bond issues in 1928, totaling $1,000,000. These bonds were sold promptly, bringing a premium of $30,000, which, added to the bond fund and placed on interest, will give the county a total road fund in excess of $1,060,000.

Surveys were started in May, 1928, and the first contract was let in June, 1928, for about 40 miles of grading and creosoted wooden bridges on some sections of the work. The roads embraced in the county system are primarily market roads and are so planned as to furnish means of travel for the farmers living in the principal agricultural sections of the county. These roads connect with the state inter-county system at various points and also intersect each other frequently. The entire system is planned so as to serve the greater portion of the county to best advantage.

All-Year Roads Planned

When the county road system is complete, Fayette County will have 150 miles of gravel macadam roads serviceable 365 days in the year. The state has completed 42 miles of high-class paving in the county and has plans calling for about 60 miles additional to its system. On completion of the county and state programs, Fayette County will have 252 miles of first-class all-weather roads. The county contains 725 square miles and there is approximately 2 miles of road to each mile of area. This means that there will remain more than 1,000 miles of earth roads after the completion of the state and county paving program. It is estimated, however, that 75 per cent of the traffic originating in the county will have easy access to the paved roads.

Locating the Highways

The location of the county system of roads is largely confined to a narrow section of the county, as the bond calls prescribe the territory through which the route must pass and confine it to sections that are improved with residences. The surveys are therefore restricted in scope and consist in securing the best grades and curves possible for each community served. The maximum grades are generally 5 per cent, and the curvature is limited to 4 degrees. In certain instances, conditions will not permit of close adherence to these limits, and some leeway is allowed from this standard.

Type of Construction

Construction is to a fair standard and is adequate for all needs of this county system. The bridges are creosoted wooden timbers, and piling is used in all foundations. The bridges are designed to safely carry loads of 10 tons traveling at high speeds. The gravel macadam surface is wide enough on the main roads to carry two-way traffic. On some of the less important roads the surface is only 10 feet wide for one-way traffic, but ample earth shoulder is provided for passing.

About half the construction and grading was let by contract. The other half

of the grade construction is being performed by county forces, the county having purchased eight heavy tractors and a like number of road machines. All bridge work was let by contract. The grading on these sections will probably average 5,000 cubic yards per mile. On sections constructed with tractors, the grading will average 3,000 cubic yards per mile.

All gravel hauling was contracted for on a ton-mile basis. On the more important roads 2,000 tons of gravel is used per mile, while on the less important roads 1,000 tons of gravel is used per mile. More than one mile of bridge work will be constructed on the entire county system of roads before they are completed. The county is unfortunate in having a few large streams and many smaller ones to bridge. Because of this feature, funds are limited with which to surface the roads.

There are no serious physical obstacles to be encountered on any of the work. The county is mostly rolling, with a limited hilly section through which only one road is projected. The soil is a sandy loam in the lower sections of the county, and in the higher sections loam mixed with clay and some sand. All the soil is underlaid with a stiff clay which, in the hilly section, approaches hardpan formation.

Agricultural Conditions in the County

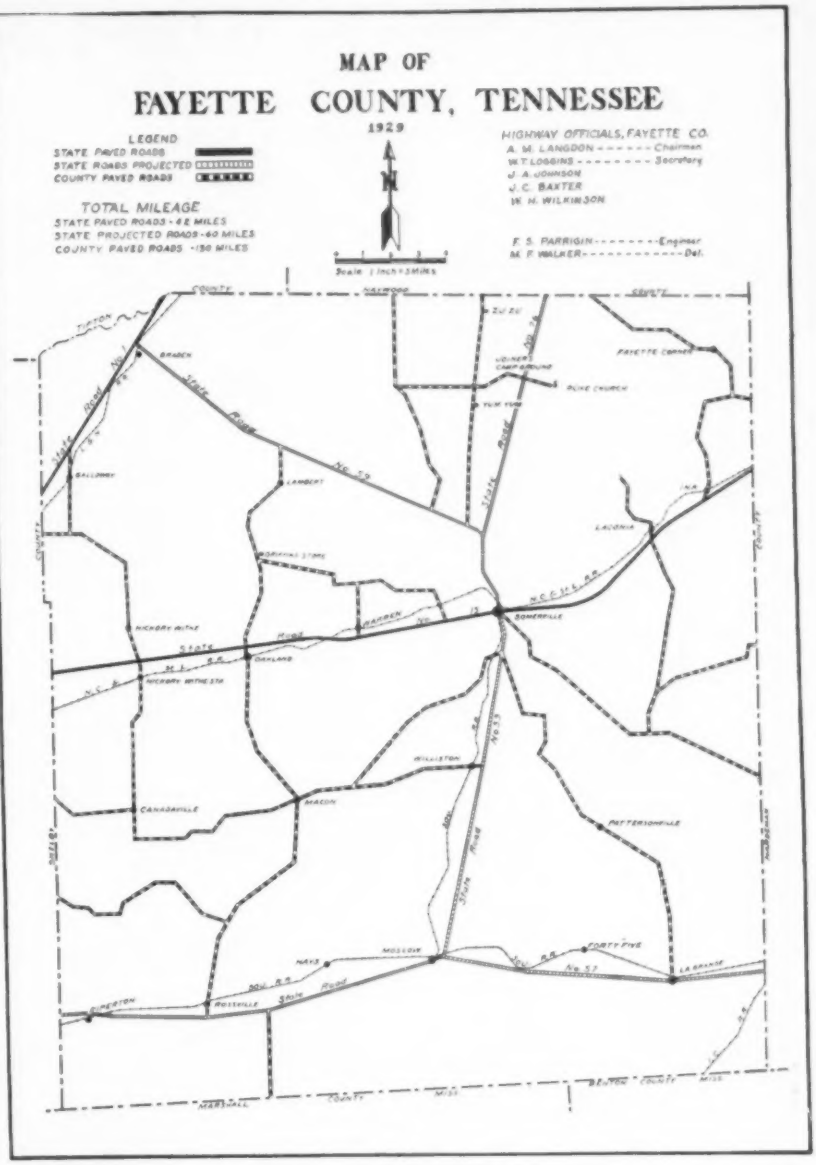
Fayette County, Tenn., is an old settlement and was in a high state of cultivation as early as 1850. As with other sections of the South, the Civil War reduced many of the older families to poverty, and the county has never completely recovered. Cotton and corn are the principal crops, with a scattering of hay and oats. Wheat was produced successfully many years ago, but the soil has been permitted to deteriorate largely as a result of tenant farming, although the land could be easily rebuilt to its former state of fertility if properly cared for.

Personnel

The county highway system is being constructed by a commission composed of A. M. Langdon, Chairman, W. T. Loggins, Secretary, J. A. Johnson, J. C. Baxter and W. H. Wilkinson, with F. S. Parrigin as Chief Engineer.

The contractors for grading are Y. Y. Phillips, W. D. Banker Construction Co., and F. G. Hall. The bridge contractor is J. F. Mullins, the contractor for gravel-haul Nelson Brothers; gravel for surfacing has been furnished by the Memphis Stone & Gravel Co., and the lumber and piling by the Ayer & Lord Tie Co.

Actual construction was begun in July, 1928. Since that date more than 50 miles of road has been graded, more than 3,000 lineal feet of bridges built, and 8 miles of surfacing placed on the roadway. It is expected that the county will be able to complete most, if not all, of the entire 150 miles before the end of 1929.


MAP OF
FAYETTE COUNTY, TENNESSEE
1929
LEGEND
STATE PAVED ROADS
STATE ROADS PROJECTED
COUNTY PAVED ROADS
TOTAL MILEAGE
STATE PAVED ROADS - 42 MILES
STATE PROJECTED ROADS - 60 MILES
COUNTY PAVED ROADS - 150 MILES
HIGHWAY OFFICIALS, FAYETTE CO.
A. M. LANGDON - - - - - - - Chairman
W. T. LOGGINS - - - - - - - - Secretary
J. A. JOHNSON
J. C. BAXTER
W. H. WILKINSON
F. S. PARRIGIN - - - - - - - - Engineer
M. F. WALKER - - - - - - - - - - - Del.
Scale 1 Inch = 3 Miles
SOMERVILLE
MACON
GERMANTOWN

The Synthetic Art of Developing Environment

PLANNING is two things: (1) an accurate formulation of our own desires—the specific knowledge of what it is we want; and (2) an accurate revelation of the limits, and the opportunities, imposed and bequeathed to us by nature. Planning is a scientific charting and picturing of the thing (whether logging railroad or communal center) which man desires and which the eternal forces will permit.

The basic achievement of planning is to make potentialities visible. But this is not enough. Visibility is only part of revelation. The mold must be rendered not only visible but audible. It must be *heard* as well as *seen*. The regional planner, in revealing a given mold or environment, must portray not alone for the sense of sight, but for that of hearing also. Indeed, he must portray in terms of all the senses. If he would portray for us a possible colonial village in New England, he must portray it in terms of the three dimensions—and of the five senses. He must in his imagination see the Common, and hear the church bell, and smell the lilac blossoms, and contact the green-shuttered houses; he must also see and hear and contact the human activity. The individual art of painting consists in revelation in the realm of eyesight; the individual art of music consists in revelation in the realm of hearing; but the synthetic art of developing environment consists in revelation in the realm of all the senses. Planning is revelation—and all-round revelation.

—From "The New Exploration," a Philosophy of Regional Planning, by Benton MacKaye. Harcourt, Brace & Co., New York. 1928.

Open Spaces in the Regional Plan

Possible Methods of Securing and Preserving Wedges of Open Space to Preserve a Balance Between Urban and Natural Conditions in the Growth of Our Cities

By CHARLES W. ELIOT 2D
CITY PLANNER, NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MULTITUDES of our fellow citizens measure the advance of civilization in the United States in terms of the growth of our metropolitan cities. The great city is the symbol of progress in social culture, in wealth, in society, in art. To many of these people—too many—bigger and better are synonymous terms. They regard the ever increasing spread of houses, stores and urban improvements as an encouraging sign of the onward march of American civilization.

In contrast to these people, there are other extremists who regard this same increase of our great cities as a "barbarian flow." They see the hot dog stands, billboards, and filling stations spreading along our country highways adjacent to our great cities as the arms of an octopus swallowing and absorbing the countryside and destroying its natural beauty. They watch the never ending flow of automobiles on these country roads on Sundays and holidays, when the city folk can escape from the city, and they wonder if these cars are black corpuscles of the blood of the octopus or a swarm of black locusts sent to lay waste the countryside.

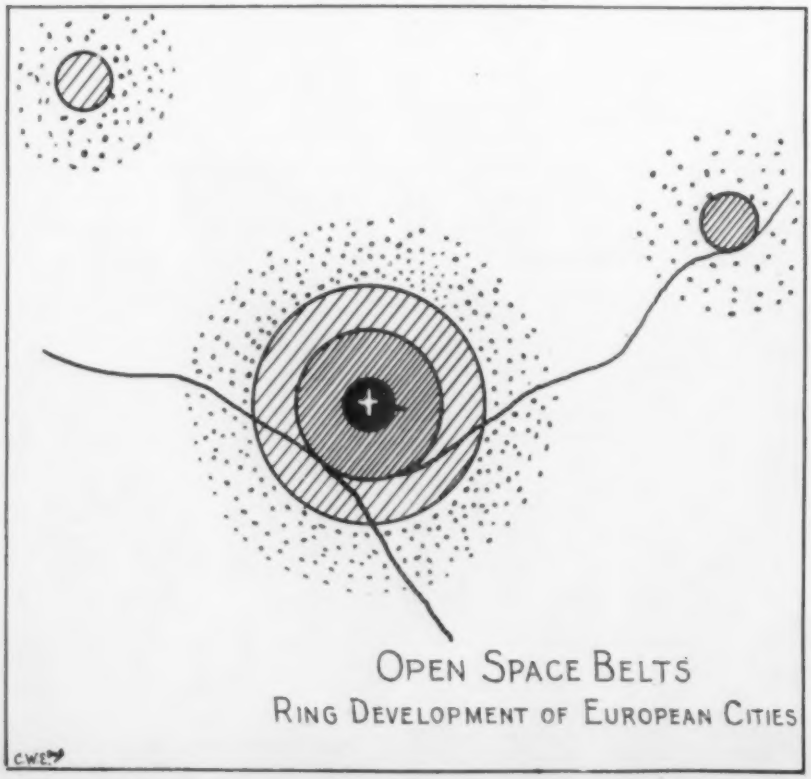
We all have friends who fall into both these extreme groups, but it is the function of city and regional planners to try to find a middle ground and to make people understand the need and advantage of keeping a balance between urban and natural conditions. To this task we bring our special training—be it in landscape architecture, engineering, architecture, or law, and the desire to combine scientific method with artistic creation. Analysis of the laws of growth which govern the extension of urban conditions is apparently the first step.

European "Belts" and American "Wedges"

Great cities of this country have all one similar characteristic: they spread from a center along the arteries of transportation, like fingers of a hand, leaving spaces between the fingers which, for the time being, are less accessible and therefore slower to come into urban use. In contrast to this type of growth of American cities, the older European centers of civilization grew in belts or rings. Each period of growth was marked by the city wall or fortifications of the period within which the city grew to a high density of population and then overflowed into the surrounding area. With each successive overflow, new walls, new fortifications, were built and the process repeated.

The result of these different types of growing pains in Europe and America is reflected in two theories of regional planning in the two continents. In Europe, particularly in England, there has been developed a theory of balance between urban and country conditions which is best known in the United States as the "agricultural belt." This belt of open space, completely surrounding the city, is intended to limit the expansion of the central city and to provide parks, farming land, and open space conveniently near the mass of population. To avoid overcrowding of the city within its wall of green, the theory provides for the starting of new cities or towns beyond the agricultural belt of the first center as population increases. This theory of centers and satellites has been very fully developed by the enthusiasts of the garden city movement in England, France, and Germany.

In America, on the other hand, we have no very definite theory as yet, but, working from the natural laws of growth of our great cities, we are gradually evolving a trend of city planning thought quite different from that in vogue in Europe.* The American theory, if we can dignify it by that name, involves a system of wedges of open space penetrating into the heart of the metropolitan community with circumferential highway or parkway connections between the fingers of urban development. Since our cities apparently naturally tend to grow in this manner, we have only to learn the why and wherefore that has caused this type of growth, and to take advantage of the existing situation to perpetuate the open wedges by provision of parks and public reservations in these areas.



Wedges Along the Waterways

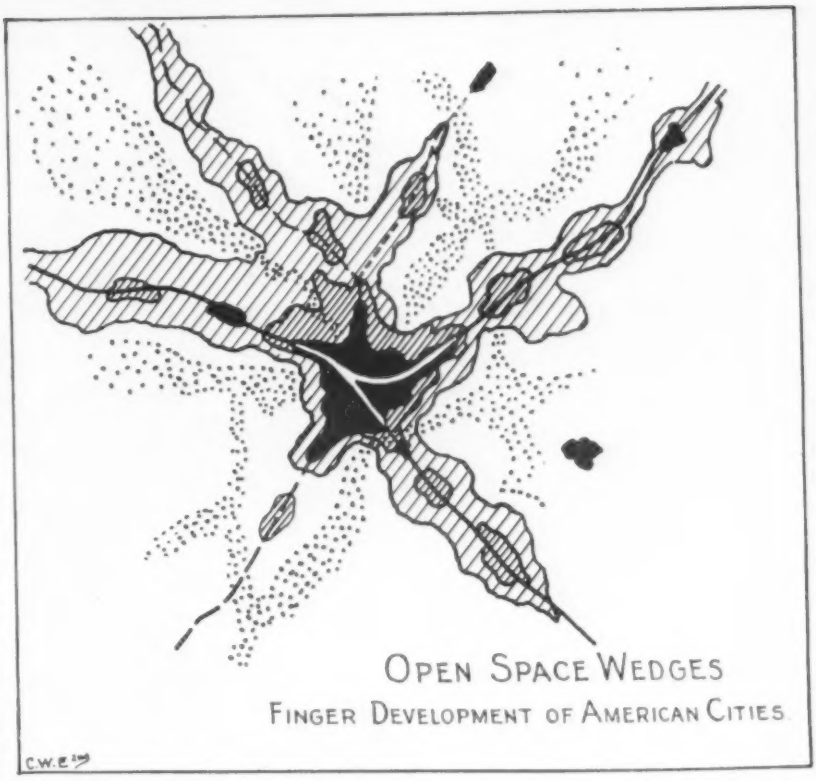
Most of the larger centers of population in this country are located at the confluence of large rivers or in the drainage center of the region they occupy. Wedges of open space along these rivers or streams penetrate toward the

* Compare "A Reply to the British Challenge," by Arthur C. Comey.

centers of New York, Philadelphia, Boston, Washington, etc. The rivers themselves constitute open areas of considerable extent, and along their banks swamp lands or the steep sides of ravines are ill suited to urban development.

The preservation of these areas as permanent open spaces may be undertaken to serve a combination of many purposes. For instance, in Washington the cost of a storm sewer to carry Rock Creek through the congested part of town was estimated, on a basis of the cost of a small section actually constructed, at over $5,000,000; but the purchase of the land along the stream, leaving it to flow in its natural bed within a park, has involved less than $2,000,000. In Westchester County, north of New York, several valleys have been developed as parkways carrying huge volumes of traffic through pleasant surroundings that act in turn as a buffer between the highway and the residences on adjoining property.

The projects for future parks and open spaces in the Washington region have been studied with a view to grouping private, institutional, and public open spaces in wedges—chiefly along the stream valleys. All of the five major projects for the Lower Potomac, Upper Potomac, Rock Creek, Indian Creek, and Northwest Branch fall in this category and conform to the "Wedge Theory."



Which Areas to Acquire—and When

The considerations leading to the choice of areas for public parks, other than this general regional theory, have been in regard to the natural adaptability of areas for park and reservation purposes. For instance, plans have been prepared showing the rough areas around Washington with over fifteen per cent slope, with the idea that these areas were less suited to urban development than others in the region. The staff of the National Capital Park and Planning Commission has gone to various authorities on different subjects which are of interest or are of educational value, with the idea that the parks should contain as many as possible of the best examples of historic and scenic interest in the region. For this purpose we took blank topographical maps to such authorities as the experts in the Biological Survey in the Department of Agriculture, and the Geological Survey, Department of the Interior, and to a committee of the local Chapter of the American Institute of Architects. From the material supplied by these authorities, we have prepared a series of maps showing the locations of the several types of areas they indicated.

The problem now before the Commission in Washington, and in every great metropolitan region, is how and when to acquire these areas or wedges for public purposes. Ideally, we should find the exact moment when the increasing cost of acquisition is balanced by the need for the area for public use, making due allowance for the withdrawal of land from taxation and for the cost of its maintenance and development after its purchase. It is difficult, if not impossible, to time the acquisition of public properties in this ideal manner, since the public interest in such matters seems always to go in waves. The public apparently must feel a very definite lack of some obvious necessity before public opinion crystallizes into action to provide the means of catching up with growing population or rising land values. Sometimes, as in Washington, it requires more than a great lack to bring action; the actual destruction of some of the region's most important scenic and recreational assets by cutting of trees, filling of valleys and building operations must precede. We must take advantage of interest when it is aroused, to at least catch up.

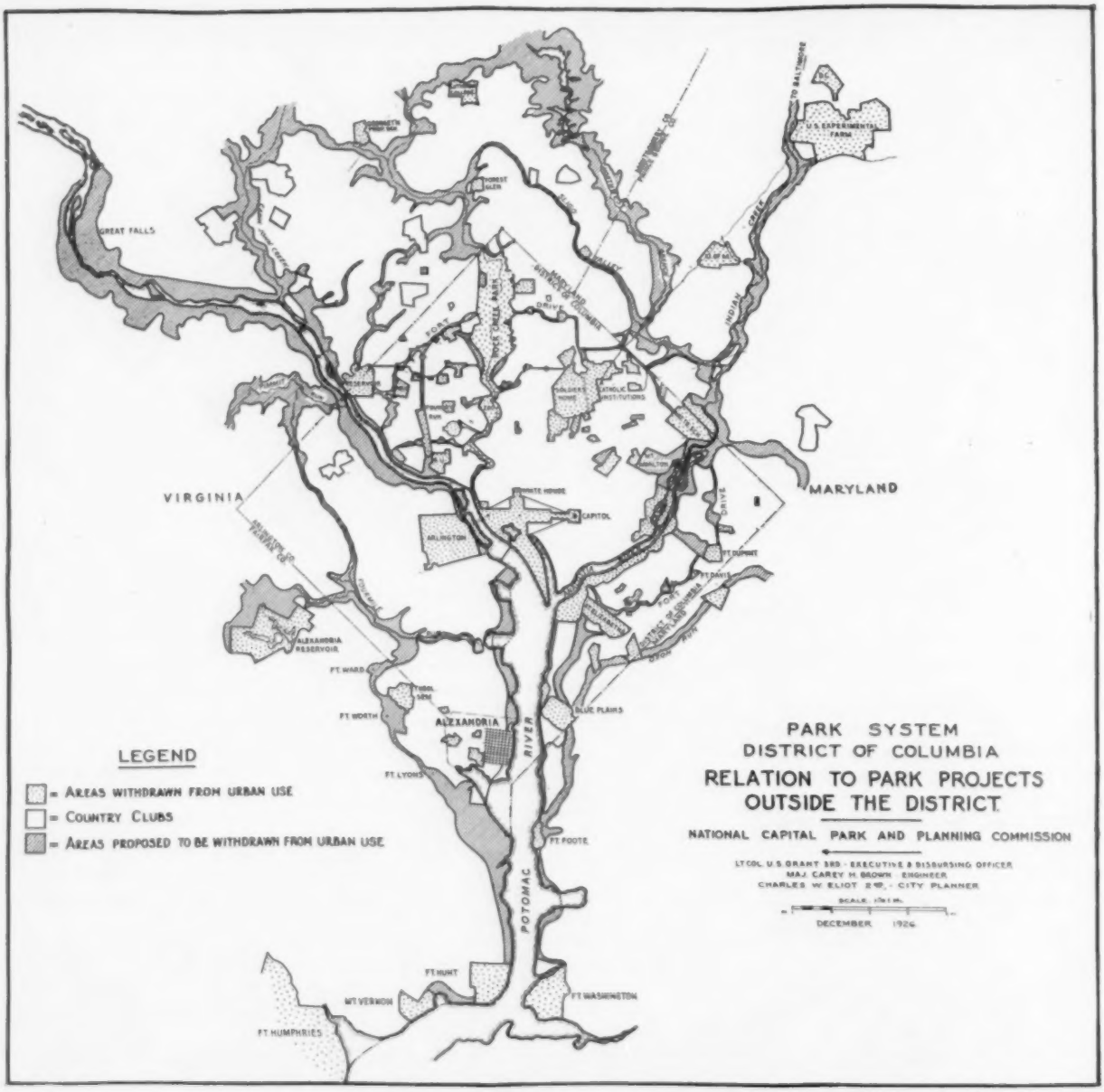
Taking Easements in Land Desired Ultimately for Parks

It has been suggested that radical changes in our theories of zoning, taxation, etc., might be utilized to simplify the problem before us, but none of these methods have as yet been put into effect in this country. Perhaps the most plausible of any of these schemes is an adaptation of the so-called "Nichols Plan" for reservation of the bed of mapped streets. This plan, evolved by Philip Nichols, of Boston, contemplated the taking of an easement or right in land, long in advance of the contemplated opening of a street; the easement to prohibit the erection of any structure in the street line, and providing that, if such structure were built, no compensation would be allowed for the improvement when the street was finally opened. By purchasing or condemning such a right or easement long in advance of any probable use of the property for other than a permitted use, the cost or damages to be paid by the public might reasonably be kept at a low figure. If we could take similar easements or rights in lands ultimately desired for park purposes, we might prevent the cutting of trees, filling of valleys, and similar destruction of park values in advance of the time when the public need for the whole area had become sufficiently pressing to warrant acquisition of the fee simple.*

An act authorizing the National Capital Park and Planning Commission to acquire such rights or restrictions adjoining existing parks and reservations was passed by the last session of Congress and approved by the President.† This law is similar to that in force in relation to the Metropolitan Parks in Boston, and it is hoped and

*Editorial Note.—The Standard City Planning Enabling Act, published 1928 by the U. S. Department of Commerce, discusses in some detail the "Nichols Plan" and that advocated by Messrs. Bassett and Williams, and suggests the exact phraseology of sections whereby either plan may be incorporated in a state law.

† Public No. 646—70th Congress, approved December 22, 1928.



expected will make possible the preservation of the essential values of parks by extension of restrictions in necessary cases over adjoining property with substantial savings to the taxpayers.

Zoning Rural Land for Open Spaces

A second and somewhat similar scheme founded on the zoning power has also been suggested, under which we might zone large areas of country land for open space purposes. The scheme contemplates action under the police power without payment of any compensation to the property owner in advance of the final purchase of the land by the public. In England they are attempting to use this method in regard to areas which are obviously unsuited to residential use, such as swamps and very poorly drained land, but there is difficulty in its application as against restricted industrial use. In this country, while the principle of zoning in the interest of safety, health and morals is well established, it will probably take some time before public opinion and our courts are ready to recognize a balanced urban development as essential to the health, safety, or happiness of the inhabitants of our cities.

Preferred Rate of Taxation on Existing Private Parks

A third method of preserving our privately owned open spaces in those cases where such preservation is to the advantage of the general public, was suggested a few years ago by Andrew W. Crawford, of Philadelphia. His idea, as I understood it, was that in such cases, as for instance with golf clubs, a preferred rate of taxation for a period of years might be allowed as an inducement for owners of such open spaces to continue the open space use in spite of increasing value of surrounding property. The general application of any such preferred rate of taxation must in justice, however, be accompanied by some provision to return to the public a share of the unearned increment in case a golf or country club, having enjoyed this preferred rate of taxation for a period of years, should then decide to sell and cash in on the increased values. It has been suggested that in that case, some deferred cash payment of all or part of the difference between the preferred rate of taxation and the regular rate paid by adjoining property, should be paid into the city treasury. It is obviously difficult to adjust fairly such preferred rates of taxation, and the scheme is open to serious political abuses, but it appears to warrant very careful

study before it is discarded as impractical.

Paying for Parks

Besides these possibilities, you can always fall back on the tried and true methods used in the past—of bond issues, gifts, and direct appropriations from current revenues. In Washington a bill (H. R. 15524) is now before Congress with a slightly new twist of application of these familiar methods suggested by Representative Cramton, of Michigan. This bill provides for the acquisition of the primary elements in a comprehensive park program for the Washington region, dividing the costs of the different projects among those interested or benefited in different ways according to the type of project. To assist in the timely acquisition of the lands in question, the bill makes possible, as part of the central government's contribution to these projects, the advance of funds from the Federal Treasury over definite periods of years without interest. Such assistance from the larger unit, be it federal, state, or municipal, in building regional, state, or metropolitan park systems might often make possible the cooperation of smaller governmental units, where now progress is prevented by the inability or unwillingness of the several organizations to agree on division of costs.

These possible methods of securing open spaces to preserve a balance between urban and natural conditions in the growth of our great cities are all subject to one fundamental difficulty—neither these methods, nor others of greater merit, are used *in time*. Our cities are like the members of the "Coulder and Woulder club" that flourished for a while in Florida. The club was composed of the gentlemen loafers at the corner drug store during the boom, who confided to you that they "coulder" bought that lot for $100 the year before and "woulder" made a cool 10,000 if they had. Planning in advance for the growth of our cities will make it possible to substitute "could and did" for expressions of regret for failure to act in time.

New Market District and Food Terminal Will Reduce Congestion and Facilitate Handling Perishable Foods

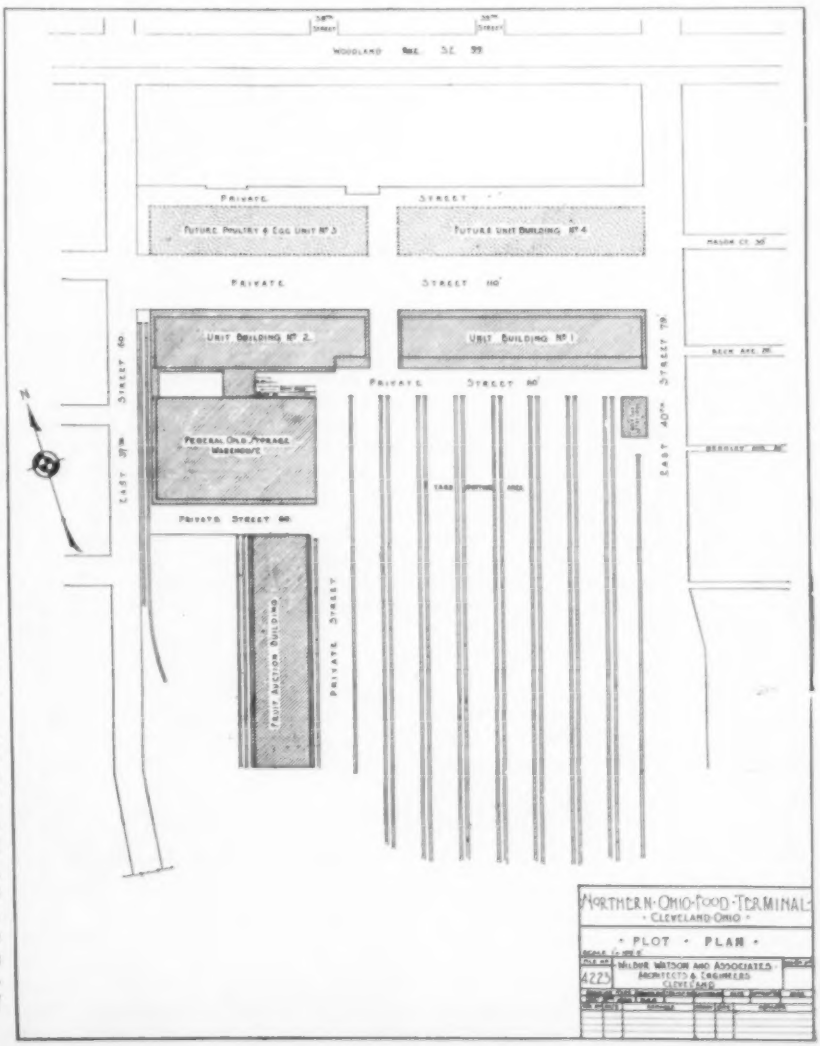
By CHARLES E. CONLEY
CITY PLAN ENGINEER, CLEVELAND, OHIO

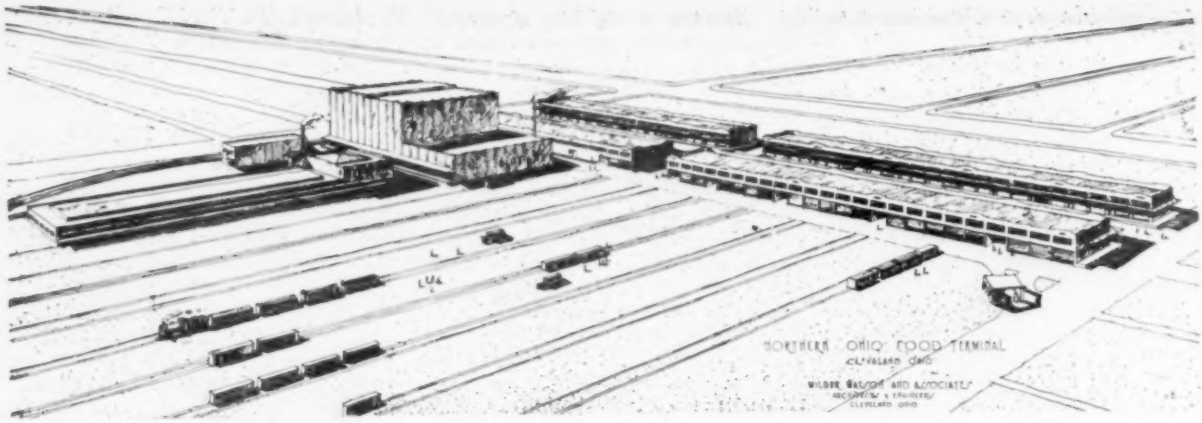
CLEVELAND'S new Market District and Food Terminal, which is now nearing completion, represents an investment of something over $7,000,000. It is the product of the close cooperation and study of the leading commission merchants in Cleveland and the Nickel Plate Railroad. An entire neighborhood has been transformed from a district of tenement houses into a site for a model terminal and business district.

Northern Ohio Food Terminal, Inc., organized by a group of representative commission merchants in September, 1926, undertook the project of developing a new food center for Cleveland when it became apparent that the Cleveland Union Passenger Terminal would ultimately necessitate a movement of the trade to a new location. The food terminal company selected a site extending from East 37th Street to East 40th Street and from Orange Avenue to the right-of-way of the Nickel Plate Railroad, this site being accessible to every railroad entering Cleveland as well as interurban electric package freight. It is close to the geographical center of Cleveland and directly accessible to main east-and-west and north-and-south highways. The area included over 228 separate parcels of land comprising approximately 25 acres, all of which ground has been acquired. Over two hundred old residences had to be torn down and nine streets had to be vacated.

The entire project includes an unloading yard with car standing capacity of 336 cars; a fruit auction 460 feet long by 110 feet wide, with a car standing capacity of 27 cars; a cold storage warehouse constructed by the City Ice & Fuel Co. and operated by the Federal Cold Storage Co., which is one of the largest cold storage warehouses in the United States; and a Market District with a total area of more than 410,000 square feet and 46 store units nearing completion with room for expansion to double the present number of store units.

When completed, the team yard and Market District will be completely surrounded by fence to save the expense of policing after business hours. Streets and





alleys within the district will be private and will be maintained and kept clean by the Food Terminal Co. The company will have an intercommunicating telephone system to facilitate communication throughout various parts of the yard and depot grounds for the convenience of patrons. Facilities will be provided for icing and ventilating cars and for protection of cars in freezing weather.

The Market District proper faces upon a street 110 feet wide, running from East 37th Street to East 40th Street immediately north of the team track area. The unit buildings are two-story and basement buildings of concrete construction throughout with covered sidewalk 16 feet in width and raised to truck level. Each unit has a width of 20 feet and a depth of 100 feet. All these stores have been subscribed for under 99-year lease from the Food Terminal Co. by commission merchants who now handle over 90 per cent of the commission business transacted in Cleveland.

Extending Cleveland's Trade Territory

The Market District and Food Terminal yard will be in operation by April 1, 1929, and is designed to take care of all perishable food commodities coming into Cleveland. It is expected that these new facilities will make a tremendous change in the character of the Cleveland market. Up to the present time fruit and vegetables which enter Cleveland are carried by six or seven lines of railroad and are delivered to the consignee at as many different points. They must be carried by truck through the congested downtown section of Cleveland to stores and warehouses located along Broadway, Woodland and Central Avenues. This method of distribution has caused unnecessary delay and expense in handling and has resulted in making Cleveland a local market.

The new terminal will give to Cleveland a stronger group of merchants and an opportunity to bring to Cleveland from territory naturally tributary to it the buyers who now go elsewhere to purchase produce for consumption in northern Ohio. Incidentally, it will remove from the public streets an industry which cannot be carried on in the heart of a city without being a nuisance to the surrounding business district and without sidewalk and traffic congestion. It will provide in one place modern and sanitary housing for the city's food supplies.

Uniform Traffic Code Urged for the Americas

UNIFORM traffic regulations for the nations and cities of the Western Hemisphere will be considered at the Second Pan-American Congress of Highways, to be held at Rio de Janeiro during August.

Discussion of this subject has been requested by the governing board of the Pan-American Union. This action is taken as recognition by the governing board, of the growing importance of automobile travel within, as well as between, the several countries of North, Central and South America, particularly in view of the expanding interest in highway construction and the demand for the early realization of a Pan-American Highway connecting the several nations.

The August meeting will discuss also a preliminary draft of proposed Pan-American conventions on automotive traffic, submitted by the Pan-American Confederation for Highway Education. This draft is based on broad general principles to which it is felt the prospective signatories can adhere. It recognizes that each nation has exclusive control over the use of its own highways, but agrees to their international use under the limitations specified. Its requirements would call for registration of all vehicles entitled to international reciprocity, registration of vehicles at point of entry (but no bond), subjection of all vehicles and drivers to the traffic regulations of the states in which they are traveling, and the uniformity of danger and direction signs as between the adhering nations. Where differences exist in present practice, the Confederation accepted the customs of the majority.

An analysis of the comparative study of the International and United States codes reveals few points of disagreement, and discloses many instances of unanimity. The codes are in general agreement on the requirements for safe driving, for the compulsory registrations of vehicles and operators, on a minimum age for vehicle operators, on restrictions as to size of vehicles, and equipment required, such as brake systems, horns, mirrors and lights.

One point of disagreement, however, pertains to pedestrians' right-of-way. The European or International code gives the vehicle the right-of-way, while the United States code specifically provides that except at policed intersections, the vehicle shall yield the right-of-way to the pedestrians. In the United States code, the rule of the road is to the right, while the International code permits a national choice. The danger and direction signs are not in entire harmony, but this is a phase of the situation which it is thought will lend itself to adjustment.

Eighth Asphalt Paving Conference to Be Held at West Baden, Ind.

THE Eighth Annual Asphalt Paving Conference will be held October 28-November 1, 1929, at West Baden, Ind., under the auspices of the Asphalt Association, New York. Special attention is to be paid to the improvement of farm-to-market roads, and airport paving, as well as city street construction and trunk-line highway improvement. The dominant feature will be the discussion of the latest and most economical methods for the construction with asphalt of low-cost surfaces of secondary and tributary highways. Salvaging of existing gravel and macadam roads and their utilization as bases for low-cost asphalt surfaces will be given serious consideration.

The Association of Asphalt Paving Technologists will also hold its annual meeting at this time, in connection with the Conference.

System of Meter Changing and Setting Used in Lima, Ohio

By CHARLES EVANS
General Superintendent, Water Department, Lima

A RATHER peculiar situation in regard to industrial accounts in Lima, Ohio, exists, in that the 135 accounts under this heading, which includes hotels, manufacturing plants, large apartments and business houses, produce approximately one-third the total revenue of the water department. During the war and shortly thereafter this source of income was equal to that derived from domestic consumption.

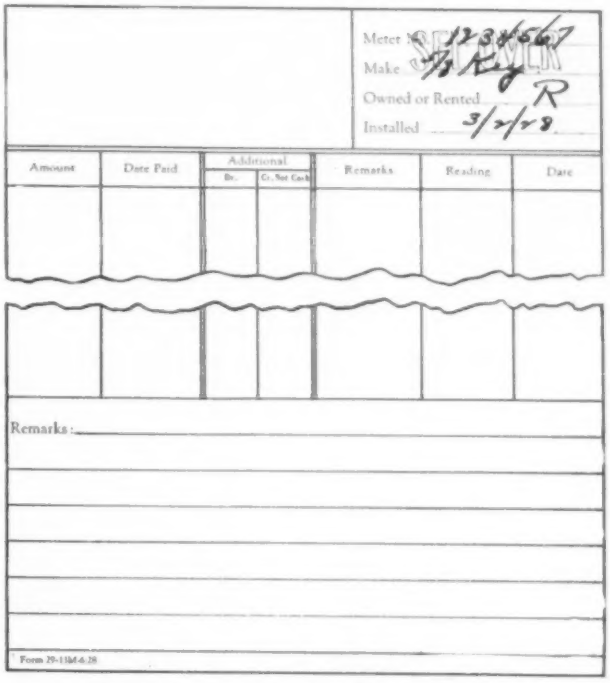
There are, in all, about 10,500 metered accounts in Lima, so that it is not difficult to understand how important the 135 industrial accounts are. All meters over 2 inches in size are taken care of by the water-works plumber, who is thoroughly acquainted with them and who many times can repair them without taking them off the line. These meters are checked very closely. They are checked by reading once each week and are billed from the office monthly.

The domestic services of the city are divided into three zones; one zone is being billed and the meters read while the billings from the previous month's readings are being collected. By doing this, it is possible to keep the meter readers busy all the time, and it spreads the collections out over the entire year instead of collecting from the entire city twice a year.

Meter Setting

There are two kinds of meter settings in Lima. Meters set in the basements are termed "cellar sets," and the ones at the curb are called "curb sets." If there is no basement or if the basement is not a fit place for a meter, in that it will not insure the meter from frost or other damage, or if there are other lines tied in before the meter is set in the basement, the Department insists on the curb set at an extra charge to the consumer for fittings and meter housing.

Date	
Street & No.	
Set	No.
Dis.	No.
Cause	Reading
Cellar or Curb	



THE ORIGINAL LEDGER SHEET MADE WHEN A NEW SERVICE IS CONNECTED

When stamped "See Over," it indicates that another meter has been set on the service, and the rubber stamp reproduced at the left below is imprinted on the back of the card giving the new record

By following this system closely, it has been possible gradually to do away with sets within the house and in inaccessible places. The Department also insists on a curb set if the property owner insists on putting his line near the sewer trench or if the water line from the curb into the house does not meet our specifications, or if the distance from the curb to the house is too great for continued safety.

One particular type of curb top and yoke has been selected as standard, and as rapidly as any of the old curb sets give trouble, they are changed over to this new type.

Recently, the 15-inch tile and top which has been used in the past on all sets up to 1-inch has been abandoned, and the 20-inch top and tile is now standard, as it is believed that it gives greater frost protection for curb meters. The Department is now making its own tiles instead of buying them.

No meter is set in a cellar unless there is a stop and waste directly back of the meter, and on the 1-inch and larger sizes, there must be valves on both sides of the meter. The valve on the outlet side stops the flow of back-water, which makes for better meter-changing conditions and saves a great deal of time in most cases.

In setting a new meter, a definite procedure is followed. The applicant must go to the main office of the water department and sign up for water. He is given the privilege of either renting the meter or buying it outright. It is explained carefully to the applicant at that time that the Water Department will not be responsible for damage to a meter by frost or hot water except frost damage in curb sets. The necessary forms are filled out and the meter is set by the trouble truck in case of a cellar set or by the shop men in the case of a curb set. If, when the trouble man arrives, he finds that the conditions are not proper for a cellar set, he is instructed to refuse to set the meter and to report the conditions to the office as he has found them. The office then explains to the applicant, and conditions are changed or the meter is set at the curb. In either case, the meter setter

Meter Location N.W. Cor Collar

NUMBER	MAKE	SIZE	DATE SET	RENT PAID
1234567	Keystone	5/8	3/12/29	
1234569	do.	"	3/12/29	R

	DATE	READING		REMARKS - LOCATION OF LEAKS - WAS NOTICE LEFT?
DEC-30			00	
NOV.			00	
OCT.			00	
SEPT			00	
AUG.			00	
JULY			00	
JUNE			00	
MAY			00	
APRIL			00	
MAR.			00	
FEB.			00	
JAN-30			00	
DEC-29			00	
NOV.			00	
OCT.			00	
SEPT.			00	
AUG.			00	
JULY			00	
JUNE			00	
MAY			00	
APRIL			00	
MAR.			00	3/12/29 = R = 1246
FEB.			00	
JAN-29			00	
DEC-28			00	
BRO'T	F'W'D		00	

CITY OF LIMA, OHIO
WATER DEPARTMENT
FORM 59 11-28 6M

FORM 59, THE CARD ON WHICH METER READINGS ARE RECORDED

makes out his record on a rubber-stamped form, marking it "new set" and hands it to the clerk the next morning. New ledger sheets and meter cards, Forms 29 and 59, are then made out and filed.

Meter Changing

There are two trucks that change meters. One is known as the "trouble truck," which takes all the trouble or emergency calls out of the office, makes shut-offs and turn-ons, changes meters for tests, leaks and for various other reasons, and sets all basement meters.

The other truck, which is known as the "not working meter" truck, changes meters which are out of order when enough have accumulated to make a two- or three-day job. This work is a good fill-in when outside work is slack.

The meter readers check off the meters which are not working, showing the size of connection on a record book, and the meters are changed from this record. The water at Lima is not hard on meters and it has never been found necessary to make a complete change or to change all the meters periodically. Usually, when a meter is changed for test after it has been in service for a number of years, it is found to be reasonably accurate.

Meter Records

Our system of keeping meter records is very simple and complete and has never caused any trouble. When a meter is changed for any reason whatsoever, the meter is tagged with a red tag, Form 60. This tag carries a complete record of the change and goes along with the meter through all the tests and repairs and is then filed by the meter tester. Any miscellaneous information which might prove valuable as a matter of record is written on the reverse side of the card.

The second form is made by a rubber stamp and becomes a leaf in the metal-backed notebook carried by the meter changer. When he has completed changing the meter, he fills out this record of the change and at the end of the day or the first thing the following morning, he turns it in to the clerk whose duty it is to complete the record by making the necessary changes on the meter-reading card and on the ledger sheet. These sheets are then filed according to date for future reference.

Meter cards, Form 59, are made to last two years and are kept for reference for two years more. These cards carry the meter number, make, size, date set, and information as to whether the meter is owned by the city, in which case the card is marked "R" or by the property owner, in which case the card is marked "Pd." In addition to this, the location of the meter is shown for the convenience of the meter reader, and the name, address and service number are put on at the top by the Addressograph. This card also carries any notes regarding leaks, and, in the event the meter is changed, the date is marked in the line opposite the month, with the reading of the meter when brought into the shop. In the regular reading space, the reading is marked "000," showing the new meter starting off without any reading on it. This completes the record on the meter card and gives the meter reader a clear understanding of just what to expect.

The ledger sheet, Form 29, is kept at the main office at all times. The first meter installed in a residence is shown in the upper right-hand corner along with other necessary information. In the event the meter is changed, this meter number and make are blotted out with a rubber stamp with the words, "See Over" and the same rubber stamp as was used on the original record is imprinted on the back and filled out. This gives the office a complete record

REPAIR TAG || DATE REMOVED 192

ADDRESS.....

KIND SET.....SIZE.....NO.....

KIND REM'V'D.....SIZE.....NO.....

BY.....READING.....

CAUSE.....

REPAIRS.....

LABOR $.....BY.....

LIMA WATER DEPT.

Form 60 REMARKS OVER

Test			
Before		After	
Full	Leak	Full	Leak

THIS RED TAG, FORM 60, IS TIED TO A METER WHEN ANY CHANGE WHATSOEVER IS MADE IN THE METER REGARDING LOCATION, TEST AND REPAIRS

of the meter change, including date, address, record of meter set, record of meter disconnected, reason for changing, reading on the old meter, whether it was a cellar or a curb set, and the person making the change.

Filing the Complete Record

This gives a full record of the change: first, the original record, which is filed by date; second, the meter card, which has all the old readings and other valuable information on it; third, the ledger sheet, which is complete in itself, and which is filed by street and number. In case of necessity, it is possible even to go back to the tag which was placed on the meter by the person who changed it. This tag has been checked by the meter repair man and tester and can be used as proof of the condition of the meter when it was changed.

The meter record, Form 86, is used in the event there are any charges to be made or to show the results of the test. This is filled out by the meter tester in duplicate and the original copy sent to the office manager who makes the charges. This slip is attached to the ledger sheet and kept there for reference until the bill is paid or until a satisfactory adjustment is made. The stub, which is a carbon copy of the original, is retained by the tester. In addition to this, the meter tester keeps a complete record of his operations for each meter in a day book. He shows the tests, the labor, and the parts used. He also shows any serious trouble that would affect the reading, such as loose hands, stripped clock gears, etc. This record can be used in computing costs or upkeep, record of number of changes, and other data. The tester uses no set form for this purpose, as the conditions vary too much, so a blank book is used as most suitable.

METER RECORD

DATE ..... 192...

Name ..... St. .....

Meter No. ..... Kind ..... Size .....

Reading ..... Test .....

CHARGES

Cause .....

Mat'l Used ..... $.....

.....

.....

Certified Correct: Hrs. Labor @ ....Hr. .....

.....Tester. Total Chgs. $.....

.....Sec'y.

FORM 86 1M 2-27

FORM 86, USED TO KEEP A RECORD OF TESTS AND COSTS OF METER MAINTENANCE

Another Suburb Considers Architectural Control

THE forward-looking citizens of Wauwatosa, one of the high-class residential suburbs of Milwaukee, are proud of their community and are striving to continue and enhance its attractive character.

Up to 1921, only eight years ago, Wauwatosa was a little town of less than 7,000 inhabitants living mostly in the lower lands forming the geographical center of the present city. It was the product of eighty years of slow growth as an outlying trading post of Milwaukee. Since 1921, the population has increased to about 23,000 and the general character of the development, as it has spread out over the higher land, has ranged from residential districts as high-type as any in the region, to more moderate districts of mixed single-family and duplex houses, but at no point resembling the close-built, crowded conditions of city development.

It is generally realized that both the rapidity of growth and the high type of development have been due in large measure to the protection afforded favorable residential development under the 1921 zoning ordinances. It is also generally realized by the residents that the character of a suburban section often changes with great rapidity, calling for new types of regulation; that new neighborhoods created as the town expands need new protection; and that the whole matter of Wauwatosa's next 20 or 25 years of growth calls for extended control measures. Accordingly, Jacob L. Crane, Jr., Chicago city planning consultant and author of the original zoning ordinance, was recently retained to make a comprehensive investigation into the adequacy of existing regulations, and to recommend appropriate revision and extension.

One of the most significant sections of Mr. Crane's report, which is published under the title of "Zoning to Protect Wauwatosa," is its final paragraph in which is made clear a fact of great and growing importance not only to that city but to cities all over the country, namely: *"The most important factor in the appearance of the town, and the one over which zoning, as such, has no control whatever, is the architecture of the buildings."* A preceding paragraph contains the following recommendations:

"Wauwatosa has been, in general, very well developed, and the citizens of the town are now thoroughly aroused about maintaining and improving that standard. Uncontrolled and unguided though its building has been, there have not been many architectural monstrosities in Wauwatosa. As time goes on, there may be many more. In recognition of the relatively mature viewpoint of the city on questions of its physical development, and to help guide it to improved standards, we urgently recommend the setting-up of an informal or unofficial committee to pass upon the architectural design of buildings as applications are made for building permits. Such a committee could effectively persuade builders and owners against erecting out-and-out objectionable buildings. Beyond that, and of far greater importance, would be the fact that every one engaged in building would be notified that the city, through this committee, is vitally concerned with the appearance of each building, and this would have, and in fact has had in other suburban towns, an important influence on the whole architectural development of the town."

The importance of architectural control (long recognized in the country's highest-class residential subdivisions, where it is exercised by land covenant) is being recognized also by many cities which are even now investigating legal methods for making such control effective. Meantime Mr. Crane has pioneered during the past six or seven years in writing into the official city plans and official zoning ordinances of towns and cities, recommendations for such enlightened civic leadership in the esthetics of city development as he here recommends for Wauwatosa. The effect of these recommendations and of the suggested leadership is today apparent in some of the most successfully developed suburban communities of the Chicago region, and of towns in Oklahoma, and other states of the Middle West.

Some of the students of this whole important subject, observing the success of unofficial, architectural bodies working in a purely voluntary capacity as in the places above-mentioned, are beginning to believe that their work will prove one of the most important means through which cities will eventually arrive at complete and official control over the character of their architecture. The precedent which they offer is a valuable one to many cities besides Wauwatosa.

GENERAL VIEW OF A SECTION OF THE COUNTRY CLUB DISTRICT IN KANSAS CITY, MO., SHOWING ONE OF THE TWO PARKING STATIONS IN THE COUNTRY CLUB PLAZA

Developing Outlying Shopping Centers

Delay in Providing Streets of Proper Width, Lots and Blocks of Proper Size, and Adequate Arterial Approach, Will Entail an Immense Cost in Future Readjustments

By J. C. NICHOLS

President, Country Club District, Kansas City, Mo.

THE central retail business areas of our cities represent the highest real estate values of the community. Every effort should be made to stabilize these values and promote the further development of these areas. More scientific methods of handling automobile traffic, provision of increased automobile parking areas, the creating of wider streets, the by-passing of unnecessary traffic and the best possible development of trafficways, streets and boulevards to relate these downtown areas to the whole city, should receive the most careful consideration of every one interested in the city's future. These central business areas should forever remain the dominating business section of every city.

There are many factors, however, which are contributing to the rapid growth in number and size of outlying shopping centers in practically all our cities throughout the country. This development not only represents a certain evolution in trade in response to certain changed conditions, but also denotes progress and growth in our cities. In recognizing the rapid growth in number and size of outlying shopping centers, it is well to consider the many factors contributing to this growth. Among these influences are the following:

a. Downtown automobile congestion

b. Increasing amount of suburban and tourist trade entering cities by highways

c. Development of aviation, which will also tend to direct a certain amount of trade into outlying centers

d. The advent of picture shows into outlying areas of the city

e. The building of large apartment houses, family hotels and kitchenettes in outlying sections, creating new outlying centers of population

f. Automobile transportation, which is gradually scattering the city's population outward

g. Development of chain stores, spreading shopping facilities into outlying areas

h. The building of an outlying trade clientele as a result of the rapid movement of population into suburban areas

i. The fact that many large office organizations, physicians, dentists, and members of other professions are moving their quarters to the outlying regions of the city

j. The introduction of bus line transportation within cities and from rural areas

AN EXAMPLE OF THE ORNAMENTAL TREATMENT OF AN INSERT CORNER OF A PARKING STATION IN THE COUNTRY CLUB PLAZA

Plan Now and Save Money

The rapid growth in number and size of outlying shopping centers is self-evident and the problem that confronts the planners and students of city growth is the proper control of these outlying centers. As a rule, they are insignificant in size in the beginning and are not commanding the attention they deserve of municipal authorities and city planners. Delay in providing streets of proper width, lots and blocks of proper size, and adequate

arterial approach, will entail an immense cost in future readjustments.

Up to the present time the appearance of the ordinary outlying shopping centers is generally unsightly and menaces the beauty of the city. More attention should be given to the architectural control and the general layout of such centers. The influences which we enumerated are increasing rapidly and many of the present outlying shopping centers will ultimately become very large ones. As a rule, most of our cities have too much land zoned for business purposes, permitting a very wide scattering of business property throughout residential areas.

We should avoid a repetition in these centers of the downtown congestion under which many of our central business areas are laboring today.

SHOPS IN WESTWOOD HILLS

This picture shows the harmonious Norman architectural design in this business group in an outlying district of Kansas City. Pavement here is 60 feet wide to permit diagonal parking

Principles Adopted in Kansas City

In the building of a number of outlying business centers in the Country Club District in Kansas City, we have endeavored to follow certain principles which we offer as mere suggestions:

1. All shopping streets should be at least 100 feet in width with a paving width of 60 feet on the minor streets and 72 feet on the major streets, so as to permit diagonal parking and the movement of an ample number of lanes of traffic.

2. Diagonal parking handles about 2½ times as many cars as parallel parking and affords a much more rapid movement of cars in and out of parked position.

3. Interior loading and unloading courts should be provided for the handling of all deliveries, and alleys of at least 26 feet in width.

4. We dedicate approximately 50 per cent of our land in outlying business centers for street area, thereby increasing the amount of parking facilities and reducing the percentage of land to be occupied by buildings. Shorter blocks make quicker movement of trade from one part of the center to the other. We endeavor to overcome the pedestrian objection to frequent street intersections by the use of pedestrian isles of safety on all street corners, which not only greatly assist the pedestrian but help control and direct the movement of vehicular traffic.

ATTRACTIVE POOL IN CORNER OF PARKING STATION

This ornamental feature is between the parking area wall and the sidewalk which it faces

5. In the beginning we endeavored to by-pass traffic around these centers. Experience, however, seems to indicate that this is questionable and that merchants as far as possible should display windows facing the important arterial streets. We have found great difficulty in developing locations on side streets, even though only one location removed from the main street corner. Our merchants also have found it very difficult to develop trade where they front on a court or park recessed from the main artery.

6. We believe it is wise to severely limit the height of the buildings. We are endeavoring to have no buildings more than two stories in height in any of our shopping centers. To reduce the traffic demands upon the street, we believe it is wise to develop an outlying center horizontally rather than vertically, and possibly limit the buildings to a height of two stories unless the ground values are so great that they may demand considerably taller buildings. We question the desirability of large office buildings in an outlying shopping center and believe that such structures should be somewhat removed from the retail districts of such areas. The all-day parking needs of office organizations seriously conflict with the parking needs of patrons of the shops. We estimate that one all-day parked car absorbs space which otherwise should be used by approximately 24 shop patrons during one day.

7. We believe the massing of trade in radiating blocks is preferable to the string street type of suburban development.

A CORNER FILLING STATION

Under the plan here adopted, the filling quarters are in the center, with a drug store on one side and a gown shop on the other

A VIEW OF 47TH STREET IN THE WELL-PROPORTIONED COUNTRY CLUB PLAZA
The paving here is 72 feet wide. Other features are the safety isles, the absence of overhead wires, and uniform height of the buildings, which are limited to two stories and all required to be of Spanish design

8. Naturally related shops should be grouped together.

9. Parking stations should be included as part of the development of outlying shopping centers. These stations can be made a pleasing combination of the utilitarian and the beautiful by making them look like a park from the outside and yet using the interiors for the parking of cars.

10. All tenants and their employees should be required to park their cars at all times within these stations in order to leave street space available for patrons.

11. Billboards, overhead signs, unsightly advertising, and even the lettering on the display windows of the shops, should be carefully controlled. Every effort should be made to make the buildings distinctive in appearance and harmonious in architecture.

12. Sidewalk space should be free from unnecessary obstructions.

13. Groups of neighborhood stores should be separated by at least half a mile, and groups of stores supplying a general trade should be concentrated at larger centers from one to two miles apart.

14. Appearance of the shop buildings, on the side streets and the views of the roofs and the rear of buildings, is very important.

15. Small open squares or plazas or space for fountains or other ornaments add attractiveness and appeal and add to the beauty of the city as a whole.

16. Grass, trees, flowers, shrubbery, can all be made an integral part of the outlying shopping centers.

ORNAMENTAL TOWER OF STRIKING BUILDING IN PLAZA
In the foreground are street trees and shrubs, and to the right a filling station, located in an angular corner

STREET FACADE OF SUYDAM BUILDING IN THE PLAZA
Note the absence of advertising signs and the planting of shrubbery and trees in the sidewalk space

17. Careful consideration should be given to the arterial relation of the outlying shopping centers to the street system of the city as a whole.

18. Zoning laws should be rigidly enforced in control of outlying centers.

American cities have a great opportunity in directing the growth of outlying shopping centers. It is possible to make them distinctive in appearance and individualistic in design and layout, affording character and color to the general appearance of the city. Cleanliness and good order, a reasonable uniformity in design, height and elevation, will go far to make our American cities more attractive. Out of this order and cleanliness will come a practical beauty of great intangible value upon the spirit, patriotism and well-being of any community.

Synopsis of an address delivered at the National Conference on City Planning, in Buffalo, N. Y., May 20, 1929.

Nashua, N. H., Has an Independence Day-Birthday Party

A VIVID sentiment of local patriotism and a spirit strongly reminiscent of the folkways of early New England characterized the celebration in Nashua, N. H., which began on the Fourth of July last year but which had more than an Independence Day significance. This celebration marked the seventy-fifth anniversary of the founding of the town, and the ceremonies appropriately begun on the Fourth lasted through three entire days. Event followed event on a carefully planned program which included a great civic pageant-parade; a spectacular fireworks program; a historic celebration with a pageant depicting the founding of the town and its growth down to the present time; a fire department parade and fire drill; a big carnival and a bonfire; and—in order that no element of the population be excluded from active interest—a doll carriage parade participated in by children from two to ten and attended by a safety guard of Boy Scouts.

More than 5,000 persons are reported to have taken part in the pageant-parade, which took more than an hour to pass the reviewing stand and which was witnessed by tens of thousands of spectators. It included veterans of all the wars back to '61, the Nashua unit of the New Hampshire National Guard, representatives of civic organizations, industries, institutions, business and social life. There were floats, motor vehicles and marchers afoot all moving past in a kaleidoscope-like array of gay colors. Bits of Colonial history picturesquely interspersed the representations of all the newer elements of the city's life—the industries, churches, schools, and home and social life. At the end came the Board of Public Works display of the equipment by means of which streets and roadsides are kept in order. The line of march was through the principal streets of the town, which were decorated to a degree rarely, if ever, equaled in the city's history.

One of the most picturesque and entertaining features of the whole celebration was the historical fire department parade. The town's museum of antique equipment figured conspicuously in the parade, which represented the local history of fire-fighting from the earliest times. It included an old hand tub, a horse-drawn steamer, a variety of the appliances which supplanted these, and so on down to the modern, motorized machinery now in use. The whole was headed by a platoon of policemen. After the parade, the firemen returned to their various headquarters to await the alarm for the spectacular three-alarm fire-drill to be staged in Railroad Square. The whole block was crowded to capacity long before the alarm sounded.

SCENES AT THE CELEBRATION OF THE 75TH ANNIVERSARY OF THE FOUNDING OF NASHUA, N. H.

An old horse-drawn steamer, a part of the parade of fire department equipment of bygone days, is shown above. At the right the modern aerial ladder appears, participating in the three-alarm fire drill

The alarm sounded. The firefighting units one after another responded. The military band struck up a stirring tune, and the crowds watched in more suspense than they had ever displayed at a real fire while the aerial ladder was erected, while a fireman mounted it and entered the "burning" building to rescue the man and woman trapped by supposititious flames on the upper floor; and when the man came hurtling down and was caught in the life-net below, the multitude gasped as if he had been a real man instead of a man made of straw. The woman, also of straw, was borne down the ladder, to cheers; and the feat was followed by still more daring roof-scaling and other demonstrations of the aerial truck equipment in operation.

The historical exercises, held in Greeley Park, one of the town's principal outdoor gathering places, marking the last day of the ceremonies included an address by the Mayor, the reading of an appropriate original poem by a Nashua citizen, addresses by former citizens, and a program of music fittingly adapted to the occasion. Following this came the historical pageant, written by a local minister and ably depicting the founding and development of the community and its history down to the present time.

The whole occasion was one of good fellowship and friendly cooperation on the part of the citizens in celebrating the town's beginnings and the beginnings of the nation, and their progress down to today.

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Protecting Necessary Grade Crossings by Proper Signal Devices

WHILE the prohibition of additional railroad grade crossings and the continued elimination of existing dangerous crossings are of fundamental importance, it is just as vital that the protection of all necessary crossings be given the same careful study as other dangerous points on the public highways, contends R. H. Ford, Assistant Chief Engineer of the Chicago, Rock Island and Pacific Railway Co.

This opinion and a summary disclosing that the number of crossings protected by gates or watchmen is decreasing while those protected by signal devices are increasing, were given by Mr. Ford in a paper read recently at the Fifteenth Annual Conference on Highway Engineering, held at the University of Michigan.

The summary of various types of protection which Mr. Ford presented during his discussion of the general problem of marking grade crossings, is based on data compiled by the Interstate Commerce Commission. It discloses that 5,747 crossings last year were protected by gates; 7,302 by watchmen; 16,627 by signals; and 204,742 by fixed signs. This gave a total of 234,418 protected crossings, while 3,426 were unprotected, bringing the grand total to nearly 238,000, an increase of 1,561 grade crossings during last year.

Urges Automatic Signals

Wherever applicable, the automatic signal, or "24-hour mechanical flagman," should be utilized in the interest of uniformity and safety, Mr. Ford believes. Its value as a protective unit is being proved by the very fact that it is steadily replacing flagmen and manually operated gates as the most reliable device available, he points out.

"Grade crossing protection to be efficient and satisfactory, requires that there be two signals at each crossing, the *home signal*, which should be placed sufficiently close to the tracks to prevent pocketing of an automobile between the signal and the rails, and the distant or advance warning signal or sign. This latter sign should be on the side of the highway, in conformity with the regular practice of state highway authorities, and placed at a sufficient distance from the crossing to enable a driver to know of his approach to a railway grade crossing. In this manner, he would be prepared to stop on the flash of the signal warning lights or the movement of the wigwag which gives notice of the approach of a train."

Under usual conditions, Mr. Ford states, these lights are regulated so as to start flashing 20 seconds before the train reaches the crossing. This is arranged through an electrical contact between the advancing locomotive and the track circuits. For a train approaching at the speed of 60 miles an hour, this is rated at approximately 1,760 feet along the track from the crossing.

Home Signal in Center of Highway

Where practical, the *home signal* should be placed in the center of the improved highway, which should be widened sufficiently for the purpose,

Courtesy Newark Evening News

ONE REASON WHY RAILROADS SHOULD BE GLAD TO GET RID OF GRADE CROSSINGS
A Washington-New York express ran into a heavy trench-digging machine stalled at the Iselin, N. J., crossing

both on the approaches and at the crossing, the railroad engineer declares.

"The railway sawbuck sign with the words 'Railroad Crossing' is now standard on all railways in the United States and is erected on either side of the track at practically all grade crossings. It may be noted here, however, as further evidence of the need of drastic revision of our highway laws, that 12 of the 48 states have various other kinds of legalized signs for grade crossings. Very few of these are in agreement with the signs required by the other states, the regulations being evidently the product of uninformed persons."

The practice of black and white striping for protective devices is now almost universal and is recommended by the Grade Crossing Committee of the American Railway Engineering Association, Mr. Ford states in his paper. He says this organization also recommends that the number of tracks to be crossed be suitably marked by a numeral on the standard sawbuck crossing sign.

Favors Striping on Pavement

It is Mr. Ford's opinion that the practice of pavement marking by black and white stripes opposite the advanced warning sign, while not so general, is most desirable. In addition, he favors carrying the black traffic line used on the pavement to divide traffic, right up to the railroad crossing. This line, he adds, has been one of the best of the contributory safety measures at grade crossings, and its use, as such, has been endorsed by the Hoover National Conference on Street and Highway Safety. He continues:

"It is indeed unfortunate that our highway and civic authorities do not or cannot find some means for cooperating with the railroads in the removal of all signs and other devices of an advertising character for the entire distance between the advance warning signs on both sides of the track. These billboards or signs constitute one of the principal contributing causes of accidents at grade crossings. They often obstruct the vision of the engineer on approaching trains and are distracting and often confusing to the auto driver."

Determination of those crossings which can be adequately protected by automatic devices, either permanently or until the time when they may be relocated, calls for an impartial investigation by a competent authority, free from local influences or the restrictive effects of preconceived long-distance rulings, the speaker remarked. Many of the crossings that are now urged for separation and where separations are not economically justified, can be adequately protected by modern signaling and protective devices, he believes.

RAILROAD CROSSING AT 91ST STREET, CHICAGO, ILL., LOOKING WEST

Railroads Best Judge of Proper Devices

From the very nature of the problem, Mr. Ford insists that the railroads are in a better position to judge of the best form of protection to their tracks, partly because they are required to assume the burden of the responsibility in case of accident. In this connection, he feels that the attitude of some of the Federal and state authorities is too restrictive. He does not believe it is conducive to cooperative action for the Federal Department of Highways, or the state highway commissions, to insist arbitrarily upon the type, character and location of protection, when not assuming responsibility with respect to cost, maintenance or the results of their insistence, in case of accident. He thus expresses the hope that the Federal Bureau of Public Roads will recognize that, so far as it is concerned, these matters after all are primarily of local concern.

"The average grade crossing can be protected and maintained by modern automatic devices at relatively small expense, including the initial outlay for construction, which includes the widening of the pavement in the same manner as is now being done at sharp curves and highway intersections. The effect on the driver is as much psychological as it is beneficial in other ways. In like manner, the railroad crossing should be widened to meet the improved highway, and the cost of construction and maintenance thereafter should then be apportioned on some mutually satisfactory basis."

Mr. Ford subscribes to the suggestion of E. W. James of the Bureau of Public Roads,* that the cost of installing protective devices be shared between the states and the railways, and would apply that policy to *all* unprotected grade crossings.

*See THE AMERICAN CITY for March, 1929, page 104.

Advertising Runs Amuck in Northern Kentucky

To the Editor of THE AMERICAN CITY:

MOTORISTS who use the highways constantly are viewing with considerable concern a system of advertising now practiced at Newport, on the northern frontier of Kentucky.

Through that section of the Middle West, communities in increasing numbers are adopting highway traffic signs, usually of metal, which are shaped like a shield and are basically orange in color. These signs are hung from a metal arm extending out from a metal pipe post, and often swing in the breeze. The posts usually are finished in an aluminum shade, which serves to emphasize further the orange of the signs.

Traffic warnings such as "no left turns," "slow down at crossings," etc., are painted on these shield-shaped signs in large black letters. Local ordinances and sometimes state laws require the motorist to heed these warnings.

At Newport, however, an enterprising tobacco company has obtained permission to erect similar signs along the sidewalks and just in from the curbing of the major streets. The supporting posts and arms ars of a near-silver color, and the shields themselves are painted yellow with the lettering in black. The advertising matter is spaced in the same fashion as the warnings on the regular traffic signs. Motorists approaching these advertising signs nearly always slow down, under the impression that they are approaching the usual highway marker. Confusion results and the motorists unconsciously tends to discount the authenticity of any shield-shaped signs.

Unless complaints against this system of advertising become more general, it is likely that other business concerns will adopt it. Motorists then would be thrown into constant confusion and the official highway signs would lose their effectiveness.

It would seem that this method of advertising should be prohibited, either by the state or municipality involved, or else that the shield-shaped highway signs should be supplanted by some other type.

FELIX J. KOCH,
Cincinnati, Ohio.

A MONTHLY OPEN LETTER

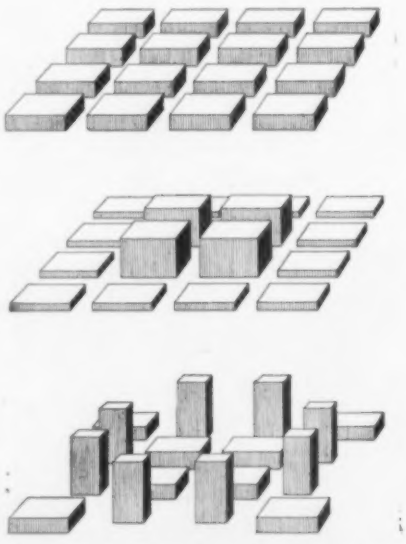
To the Mayor and Council Everytown, U.S.A.

July 1, 1929

Honorable Sirs:

WE are living in an age of bigger if not better things. We have big budgets, big tax bills, big incomes, bigger expenditures, big exports, big turnovers and, above all, big buildings. There's nothing against bigness in itself, though big organisms live under a tension that smaller ones escape. We are reminded of the great dinosaurs that once roamed the earth and went down in competition with smaller but more gifted creatures. Big buildings are—or can be—beautiful. A lone spire or tower in a small city points skyward as a symbol of the new aspirations of the age. A cluster of them in a metropolis glisten like a citadel on a hilltop to which all the surrounding area is a vast suburb in the ancient sense. They are beautiful and they are representative of America's most genuinely original contribution to the arts.

There is nothing against sheer height, but these majestic creations are under serious attack on numerous other grounds. The first is that they are congestion breeders. To this is answered that they permit vertical movement and therefore actually lessen the horizontal flow. This might be true if people lived on the 28th floor, worked on the 13th, shopped in the delicatessen on the 23rd, and went to theaters at night on the 42nd. But they don't. The amount of intramural circulation in the typical skscraper is almost negligible. What actually happens is that those who have occasion to go to other people's offices find those offices in other buildings and so the streets are abustle all day, and at five o'clock in the big cities they all pile out into the streets in a congestion that beggars description. Then somebody says we need traffic relief, and everybody agrees with him, and we start building subways and cross-overs and no end of expensive inconveniences. But as soon as this starts, more skyscrapers are started, and presently we have a neck-to-neck race between the congestion breeders and the traffic relievers.



THE TOTAL CUBICAL CONTENTS OF EACH OF THESE THREE GROUPS OF BLOCKS IS EXACTLY THE SAME

They suggest three methods of developing the central area of a city: a low height restriction, uniformly distributed, as in the first group; a centralized and congested skyscraper section, as in the second; or the more rational plan of the third group, under which bulk rather than height is restricted, and open spaces increase in area as building heights rise

NOR is this all. One high building gleaming in the sun has abundant daylight for its every window. The property is increased in value and the neighbors' assessments are jumped up. Their land is high-priced. In American we tax potential use; in England, actual. Wherefore, any neighbor who doesn't build a skyscraper is being taxed out of proportion to his actual receipts. When a group of such giants have arisen they stand in each other's light. The lower floors of all of them get little or no sunlight. The higher floors cast shadows many hundreds of feet away.

There is one further point that is perhaps the most damaging of all. Skyscrapers do not add one cubit to the population, wealth or volume of consumers of the city, as compared with buildings of lower height but with the same aggregate bulk more evenly distributed. The population, working or sleeping, may be regarded as a fixed quantity at any given time. The distribution of such population may be represented graphically by the three groups of blocks shown herewith, which have the same cubical contents (that is, they accommodate the same population).

OF course, every outlying real estate owner would like to picture the day when his city would be forty stories deep right to his very lot. And he would like to have the right to build forty stories in the air when that time comes and to feel that his property has that potential value because it has this theoretical right. The reverse is true, however. By allowing a few selfish land hogs in the city's center to build as high as they dared, the rest of the real estate owners have been deprived of potential use of their lands. In New York City today, where the argument is made that Manhattan is a small, narrow island and must therefore, allow great building heights, one need only go three blocks west of Times Square or three blocks east of lower Broadway to find real estate values in stagnation. In Tenth Avenue and on the East Side, building has been at a standstill for three or four decades. Similar conditions exist in Pittsburgh, where the same argument is made, and in Chicago, within a few blocks of the Loop. But when it comes to expensive traffic relief schemes, the owners of these huge ant-hills clamor for vast expenditures at the expense of everybody. Remote taxpayers

whose property is a mile or more distant will be called on to help foot the bills. It is not enough to argue that skyscrapers increase real estate values. They do for a few fortunately located, but do they for the many? It is open to serious doubt if such buildings increase the aggregate of values in the city.

BUT today a critic must be constructive. He must not merely find fault; he must find solutions. Most real problems, however, are not readily solved. The simplest suggestion is zoning. This has been amply tested in the courts as to its legality and amply tested in experience as to its practicability. It is no longer championed by theorists alone. It has the sturdy backing of real estate men and builders. They know that there is no surer safeguard to the stability of property values than zoning. No longer do they regard it as cramping their aspirations and impairing uses. They have learned that it protects sound investments. As an instrument in the control of the skyscraper evil it is effective and flexible. Setback provisions and area allowances, if properly applied, permit towers without sacrifice of other people's light.

Zoning regulations have a tendency to yield to public enthusiasms, and there are perhaps phases of the problem which they do not penetrate. This is suggested in the reference to tax policies. This is no matter for hasty judgment, but it is time we studied more carefully the effects of real estate taxes on the growth of our cities. A tax system that would encourage restricted use of land close to the heart of a city, and the continuance of privately owned recreation spaces, has much to commend it—provided there were some means of preventing a sudden change to intense use, by amendment of the zoning ordinance, with a great increment of value on which taxes had not meanwhile been paid.

The skyscraper may be as innocent and lovely as a river, but we all know how terrifyingly menacing a river can be at flood. Our aim must be, not to keep all building heights down, but to prevent our city centers from being inundated in a manner menacing to the welfare of those who live and work in them.

Yours cooperatively,

HINTSAND POINTERS.

Other topics dealt with by Hintsand Pointers in previous months include cooperation with legislatures and with citizens, codifying ordinances, centralized purchasing, salaries and pensions, and municipal forests.

A Motor Tourist Camp Designed for Sanitation and Beauty

MOTOR-TRAVEL camps of beauty and comfort are beginning to replace the unsightly and unsanitary camps which dot cities of the West.

El Colorado, shown here, was originated and is owned by Harry L. Wood of Manitou, Colo. It was the pattern for others which are now to be found in San Antonio, Galveston, El Paso, Albuquerque, Phoenix, Los Angeles, Salt Lake City and Denver. It represents a $60,000 investment.

El Colorado has 24 apartments and individual lodges with a practical capacity of 100 people. The lodges are of adobe-colored stucco dashed with straw after the style of the Pueblo Indian dwellings in the Southwest. They are particularly in harmony with mountainous country. The window and door trim is in Taos blue carrying on the Pueblo motif and following the Indian tradition that the color will "keep the devils out." Window flower-boxes are always well-filled with plants to harmonize with the buildings. Here and there are bird-baths. The grounds are appropriately landscaped with wild sumach, wild spirea, mountain juniper, cane and ground cactus making the surroundings harmonious with the lodges.

Inside each lodge is a comfortable living-room well furnished. The ceilings are beamed with lodge-pole pine. The beds disappear into the wall. There is a kitchenette with an electric stove and an attractive corner which serves as a dining-room. There are electric lights, shower and toilet. The sanitary garbage can is sunk into the ground just outside the rear door and has a cast-iron cover operated by a footlever.

EDSON RICH.

EL COLORADO LODGE, AN UNUSUAL IDEA IN MOTOR TOURIST CAMPS AT MANITOU, COLO.

About 1,000,000 Accidents and 27,500 Deaths from Motor Vehicles Last Year

WHILE deaths from accidents of all kinds increased 3.1 per cent in 1928 over the total for 1927, deaths from motor-vehicle accidents jumped 6.3 per cent for the same period, according to figures released by the National Safety Council in its new booklet, "Accident Facts—1929."

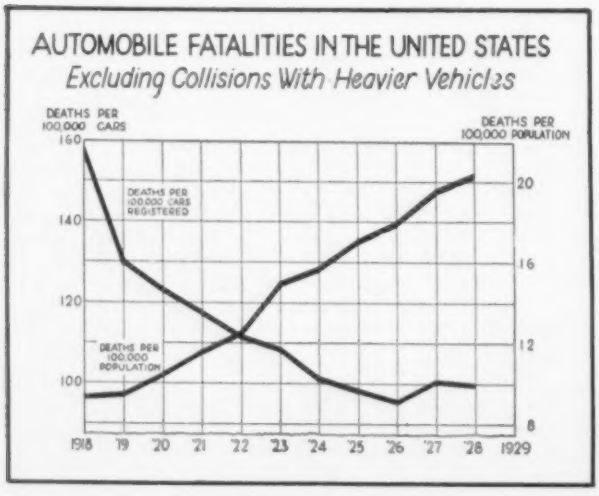
Approximately 96,000 persons met death through accidents last year, 27,500 of them in motor-vehicle mishaps. While the death-rate for all other accidents has actually decreased 8 per cent since 1913, that for automobile accidents in 1928 was five times as high per 100,000 population as in 1913. Representative states report about 35 non-fatal motor-vehicle accidents of some seriousness for every fatality, the Safety Council states. On the basis of this probably conservative figure, there were 950,000 such injuries in 1928, bringing the total number of injuries of consequence from motor-vehicle accidents to about 1,000,000.

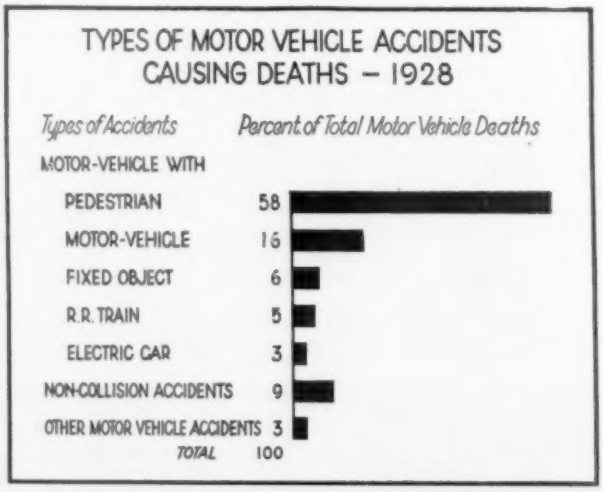
Figures also are presented for 41 states and 83 cities which supply motor-accident facts to the Safety Council each month. These cities show a combined increase in such accidents of only 4.4 per cent, and this evidence, with other facts, indicates that the rural areas are experiencing much larger increases in motor-vehicle deaths than the urban districts, the report declares. While in 1928 the rate in large cities was only 16 per cent above the rate in 1924 for those cities, the 1928 rate for the country as a whole was 29 per cent above what it was in 1924.

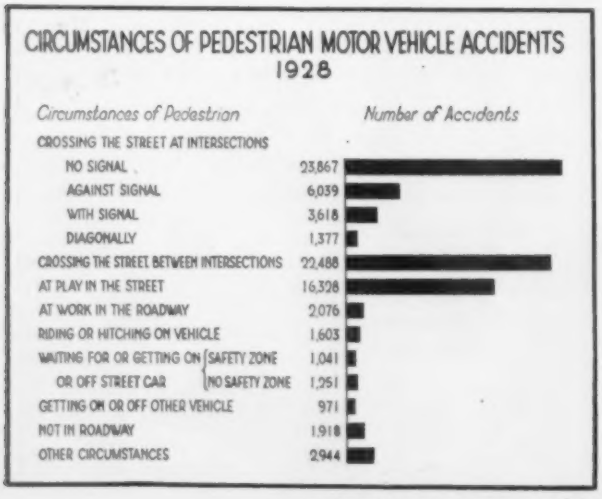
The fall months, beginning in September, constitute the peak of the year for automobile accidents, it is stated. Furthermore, automobiles are the most important cause of accidental death in every month of the year. The report also emphasizes that about 58 per cent of all motor-vehicle deaths last year were due to collisions of motor cars *with pedestrians*. And of all the victims of these collisions, almost one-third were under 15. This fact is offered in contrast to the classification of collisions *between motor vehicles*, where only 10 per cent of the victims were under 15, and 75 per cent were between 15 and 54.

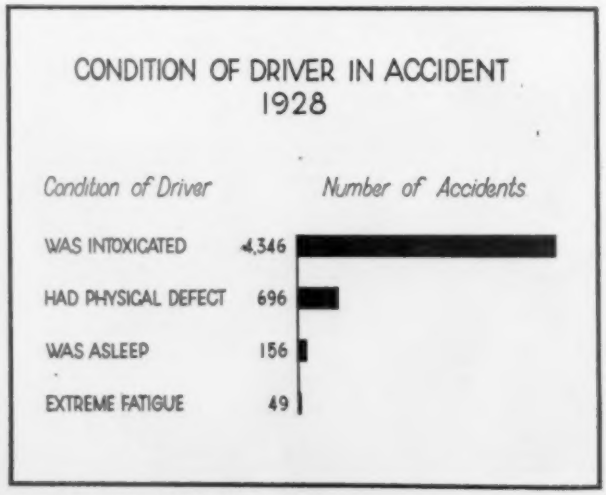
Available records also indicate that 2,568 persons were killed and 6,666 injured in railroad-highway grade-crossing accidents in 1928, an increase of 8 per cent over the total fatalities of that nature in 1927.

Intoxication was the most frequently reported condition of the drivers contributing to accidents during 1928; there being 4,346 cases of that sort reported to the National Safety Council. In contrast to this figure, the drivers involved who had a physical defect numbered but 696, those who were asleep but 156, and those suffering from extreme fatigue, 49. The reports on the conditions of the drivers involved in accidents were but a very small percentage, however, of the total number of motor-vehicle mishaps listed.






CIRCUMSTANCES OF PEDESTRIAN MOTOR VEHICLE ACCIDENTS 1928
Circumstances of Pedestrian
Number of Accidents
CROSSING THE STREET AT INTERSECTIONS
NO SIGNAL 23,867
AGAINST SIGNAL 6,039
WITH SIGNAL 3,618
DIAGONALLY 1,377
CROSSING THE STREET BETWEEN INTERSECTIONS 22,488
AT PLAY IN THE STREET 16,328
AT WORK IN THE ROADWAY 2,076
RIDING OR HITCHING ON VEHICLE 1,603
WAITING FOR OR GETTING ON OR OFF STREET CAR SAFETY ZONE 1,041
NO SAFETY ZONE 1,251
GETTING ON OR OFF OTHER VEHICLE 971
NOT IN ROADWAY 1,918
OTHER CIRCUMSTANCES 2,944

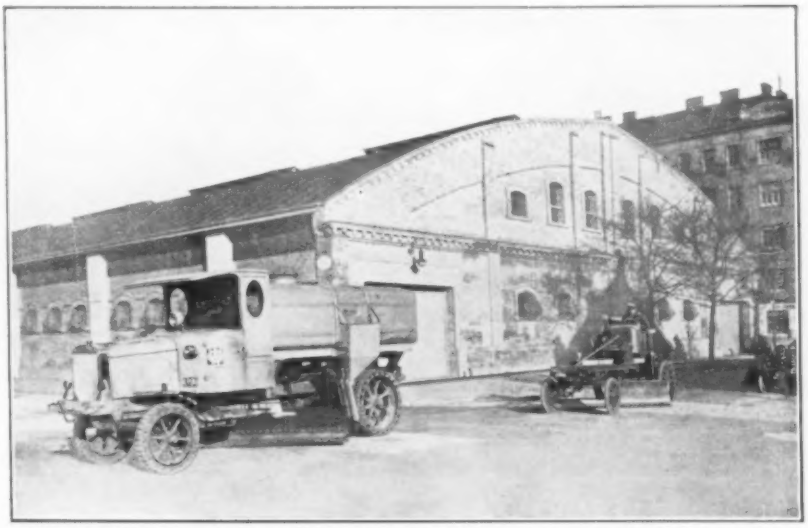


FOUR OF THE SEVENTEEN CHARTS IN "ACCIDENT FACTS, 1929"

Vienna Cleans Up at Night

A Completely Centralized Organization and System of Fines Works Wonders

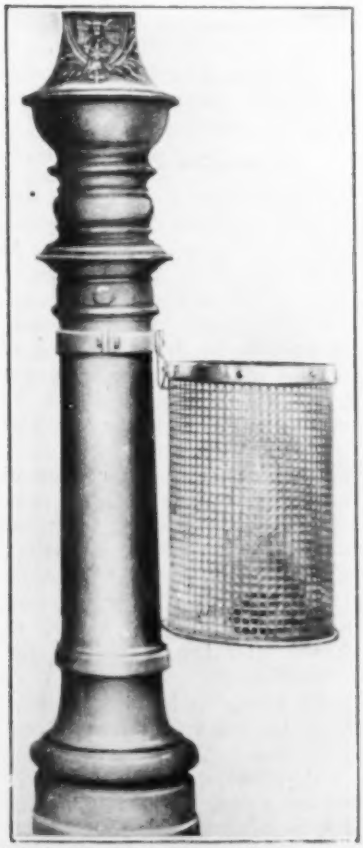
DURING the time that most of the population is at the theater or motion-picture house or concert hall or at home, the centralized cleaning department of Vienna, Austria, starts to work. Vienna has 13,180,000 square yards of streets and 4,780,000 square yards of sidewalks. The total length of streets is 100 kilometers, or 687 miles, according to an article by Franz F. Oberhauser in a valuable descriptive article in the New York Sunday *Times*, from which this text is prepared. The city has 1,200 street cleaners under the supervision of foremen, who, in turn, are under the control of the city office, which gets its orders direct from a central office attached to the Public Vehicles Department.



STREET SWEEPER AND SPRINKLER COMBINATION HAULED BY SINGLE MOTOR TRUCK, USED IN VIENNA

Street Sweeping

The street sweeper used was built after considerable experimentation, at a cost of about $7,000. It consists of a motor car with a tank holding 793 gallons of water and a sweeping roller. The motor car draws two simple sweeping machines. A centrifugal pump forces the water through a nozzle, washing the street over the four meters next to the car. The rolling sweepers are controlled by a wheel and may be lifted up or let down as desired. The brushes of the sweeping rollers are made of a tropical palm fiber called piassava which lasts only about one week. Vienna uses about 22,670 pounds of piassava yearly at a cost of $12,000.



TYPE OF RUBBISH BASKETS ATTACHED TO STREET-LIGHTING STANDARDS

A chauffeur and three assistants are required for each sweeper, which does the work of about 60 hand sweepers. Such a machine during 8 working hours at night will sweep about 37 miles of streets, and when 10 of these machines have worked all night, one-half of all the streets of Vienna have been cleaned. The refuse swept up by the machine and deposited at the curb is collected in the morning by the street sweepers and carried off in wooden carts. Less than one-third of the streets are paved with asphalt or wood blocks, and the rest are of macadam or paved with small granite stones. It is interesting to note that since the street-cleaning program in Vienna started, involving an expenditure of about $3,000,000 to motorize street cleaning, tuberculosis in the city has declined 15 per cent.

The Litter Law

A law has been passed forbidding any one to throw the smallest thing upon the street. Any one doing so is fined two schillings, or about 25 cents, which the policeman collects on the spot, giving a receipt. It follows that the city is obliged to supply places into which people can throw their tram tickets, old newspapers, empty paper bags, and orange and banana skins. Within two or three months 30,000 refuse cans made of iron have appeared in the city. These are attached to electric light poles, so that today in Vienna at about every ten steps it is possible to dispose of litter in a decent manner. One cannot throw away even a dollar bill without paying a 25-cent fine. This system has proved to be good business for the city, for in a short time over $1,000 was collected in fines. Today, however, the people are accustomed to the rule and, what is more, they are glad to have it.

Snow Removal

This last winter brought over three feet of snow to Vienna. Ninety motor snow-plows with 143 trailers were used to clear the streets of Vienna. Eleven auto plows and 235 horse-drawn plows piled up the snow, which was removed by 26 motor trucks, 626 wagons and 92 carts, which dumped the snow into the canals or the Danube. A total of 10,000 workers, divided equally between day and night shifts, worked with hand shovels, at a cost of about $20,000 a day in wages. This year, six snow-loading machines were put into service.

Garbage Removal

The total expenditure of Vienna for the establishment of a German system of garbage removal has been about $1,250,000. The collecting wagons have a capacity of about 12 cubic meters. On the top there are two rows of openings after the Colonia patent, which permits the emptying of the specially constructed

TRASH CANS SUPPORTED ON HOUSE WALLS OFF THE GROUND

garbage cans into the wagon without any scattering. From three to fifty of these cans are furnished each house, according to its size, each can having a content of about 90 liters, of which about four-fifths is available for refuse. The cans are square at the top and round at the bottom and have a swinging cover which snaps on automatically. The cans are clamped to the householder's wall about 3 inches off the ground, and can be easily removed and emptied into the wagons. A private contractor removes the house garbage and pays the city $11,000 a year for the privilege.

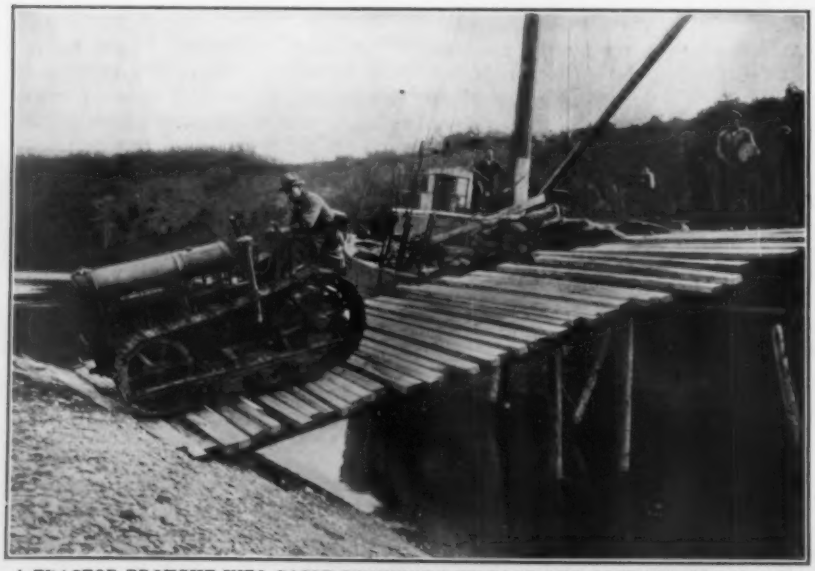
METHOD OF TRANSPORTING TRASH CANS TO DUMPS

The Business Value of Good Roads in Quebec

THE province of Quebec is a wonderland for the automobile tourist. Its scenic hills and mountains, its many lakes and streams, its picturesque cities, its quaint old-world atmosphere, and its interesting historical landmarks provide a tremendous appeal to an ever-increasing tide of automobile visitors, especially from the United States. And travel is made easy and comfortable over an extensive, well-constructed system of highways, in the building, improvement, and maintenance of which a fleet of 21 motor trucks and 43 tractors is playing a very important role.

It is estimated that at least 11,000,000 United States automobiles are on the road touring either in the United States or in other countries sometime during the year and that the yearly touring expenditures of the people traveling in these automobiles is over $3,500,000,000. The authorities of Quebec are conducting a very active campaign to obtain a goodly share of this business.

J. L. Boulanger, Deputy Minister of Roads, reports that over 400,000 automobiles, most of which were from the United States, entered the province during the 1928 season and that expenditures by motorists from the United States in the province during the season were between $75,000,000 and $100,000,000. Within five years, it is estimated, the number of United States cars entering the province will probably reach 1,000,000 yearly. In six years United States tourist traffic alone yielded a revenue of about $300,000,000, that is, over three times the amount spent since 1911 for road construction, resurfacing, maintenance, and administration.



A TRACTOR BROUGHT INTO GASPE PENINSULA BY BOAT AND DISEMBARKED UNDER ITS OWN POWER

Construction Program

There is now a total of approximately 40,000 miles of highway in the province, of which 10,531 miles are improved. At the beginning of 1927, a program of highway construction, spread over a period of five years, was inaugurated, which provides for the construction of 1,000 miles of improved highway each year. Of the improved highways, 76 per cent are of gravel and the remainder are largely hard-surfaced.

The main trunk system consists of forty-four highways, which radiate from the six principal centers of the province—Montreal, Quebec, Trois Rivières, Sherbrooke, Hull, and Chicoutimi. There are also some seventy highways of secondary importance, several of which will later become part of the main trunk system.

Notable among the highways recently finished is the wonderfully scenic Gaspé Peninsula Highway, which is 545 miles long and follows the coast completely around the peninsula. It is a thickly wooded, sparsely settled, mountainous section of the province, and has no railroads. In fact, until the construction

of this new highway, communication between the town of Gaspé at the eastern extremity of the peninsula and the fishing villages along most of the coast and other parts of the province was entirely by boat.

The building of the Gaspé Peninsula Highway presented numerous problems. Thickets of trees and brush had to be cleared. Big cuts had to be made into the sides of mountains that rise thousands of feet above sea level. Huge fills were frequently necessary. McCormick-Deering industrial tractors and International Harvester motor trucks helped much to speed this big work. The tractors were used to pull out stumps and to pull plows, scrapers and ditchers and the trucks equipped with dump bodies to haul away débris and bring in supplies and gravel for surfacing. Owing to the mountainous nature of the country, it was necessary to take some of the tractors and trucks by water to the sections assigned to them.

Maintenance

A fact that at once impresses the visitor in the province of Quebec is the thoroughness with which highways are constructed and maintained. Of the forty-three tractors owned by the Roads Department, twenty-three of the units are utilized as power road-maintaining outfits. The importance of maintenance receives particular emphasis in a recent Roads Department report as follows:

Efficient maintenance especially has been advanced by the Maintenance Act, passed by the Provincial Legislature and sanctioned on April 1, 1927. This act authorizes the Minister of Roads to maintain all improved highways at the expense of the province. By this act, the Provincial Roads Department not only maintains the main highways and second-class roads as before, but also improved roads constructed by municipalities when asked to do so by resolutions made by the municipalities. This latter procedure is necessary because maintenance at the Government's expense could not be imposed on the municipalities, for the act would then have infringed on their autonomy. In order to benefit by this act, however, roads improved by the municipalities must meet certain requirements.

For maintenance purposes, the definition of an improved road is as follows:

A road surfaced with gravel or sand and clay; a road paved with macadam (bituminous macadam or waterbound macadam); a road paved with bituminous concrete or cement concrete.

Gravel and sand-clay roads shall have received, previous to their surfacing, a regular grading in conformity with the requirements of the Department's specifications.

The minimum width of a surface of gravel or sand and clay is 12 feet, and its thickness 6 inches after setting. Only ordinary earth roads do not meet the requirements of the law. The Maintenance Act is generous, but roads given over to the Government must be roads permanently improved.

Municipalities throughout the province have eagerly availed themselves of the provisions of the new Maintenance Act. Unity of direction and uniformity of maintenance have resulted. The work is better and is accomplished at decreased cost. Stretches of main highways that pass through the municipalities are now of the same high-grade construction and in the same condition as other stretches thereof.

ing all necessary surface and subdrainage work, straightening roadways and eliminating the dangerous curves and right angles.

Since a large percentage of the improved highways in the province are surfaced with gravel, the Roads Department has made a special effort to obtain an adequate supply of raw material for this type of construction and the necessary resurfacing that is from time to time necessary. All obtainable pits which can be easily worked and contain high-grade gravel have been purchased. Some of these pits are worked on a large scale and with modern labor-saving equipment.

To be properly preserved, a gravel road must be regularly scraped and lightly resurfaced from time to time. Scraping is considered especially important by the Roads Department, a point that was always grasped with difficulty by municipal authorities when they maintained their own roads. On account of this continual care exercised in resurfacing and scraping its graveled highways, they are always in excellent condition.

TWO HEAVY-DUTY INTERNATIONAL HARVESTER TRUCKS WORKING IN A GRAVEL PIT IN THE LAKE ST. JOHN DISTRICT, PROVINCE OF QUEBEC

Seventy-six per cent of the improved highways in the province of Quebec are of gravel, and in order to insure an adequate supply of this material the Roads Department has purchased all obtainable pits in the province that can be easily worked and that contain high-grade gravel

Gravel Roads to Be Improved

Although 76 per cent of the improved highways in the province are surfaced with gravel, it is recognized that the gravel road, at least on the main highways, is only a temporary solution of the problem of road improvement. However great are the advantages of gravel, it is realized that sooner or later it must be replaced by permanent surfacing. This also applies to old macadams, which cannot be prolonged indefinitely by repairs. For six years a number of sections of the main highways have been resurfaced with a superior pavement. The Roads Department has been receiving rather large appropriations for this work. Before being resurfaced, however, the roads undergo a complete preliminary preparation. This preparation consists of filling holes, perform-

Of course, an extensive organization is necessary for road maintenance work. The mainspring of this organization is a corps of section men, one man usually being assigned to every ten miles of improved roads. With their assistants, these section men constitute a regular army in the service of the roads. On certain highways, head section men are employed, each of whom has ten men

in control of sections under him. This man is considered the best liaison agent between the section men and the division engineer. He introduces a uniformity in methods and results.

Winter Problems

Severe winters add much to the problems of construction and maintenance in the province of Quebec. In the maintenance budget provision is always made for damage during thaw periods, especially for repairing mudholes. Sometimes it is necessary to close some of the roads to heavy traffic during thaw, but this is being obviated as fast as possible by improved drainage.

The formation of mudholes during thaw is due to the nature of the soil, to the temperature of the previous autumn, to the severity of winter, and to traffic. During the autumn, water filters under the road through the shoulders and ditches. If the volume of water is considerable, it cannot run out or evaporate, and according to the greater or lesser capillarity of the subsoil it sometimes rises to the under surface of the pavement. When the damp soil freezes, the freezing water gathers in horizontal sheets, sometimes reaching several inches in thickness. If these sheets are superimposed, they can form a thickness of several feet, causing the surface to rise and the pavement to crack.

In the spring, these sheets of ice melt, the soil settles, the cracks close up, and everything would become normal if the road surface was not beaten down by traffic, which turns the melting ice and the earth under the pavement into mud. The result is that the pavement gives way under heavy loads, breaks, and sinks, producing mudholes.

Strenuous efforts are being exerted by the Roads Department to rectify this condition by draining all places affected by thaw. The drains are made of tile pipes, stone or sand, according to the nature of the subsoil. These drains carry the water to the ditches, preventing it from reaching the pavement, so that at all times, even in spring, there remains a sufficiently thick solid layer to support traffic.

Standardized Road Signs

Effective work has also been done by the Roads Department in placing standardized road signs. These signs include municipal posts, mileposts, danger signs (symbols), road markers, direction signs placed on the principal intersections in towns and at all places likely to puzzle motorists, and signs showing places on roads crossing highways. Signs have been placed on all the roads in the province by a special gang of men. Section men are responsible for their maintenance.

Unemployment a Soluble Problem—and a Municipal Responsibility

CINCINNATI is preparing to solve its unemployment problem through means to be devised by a Permanent Committee on Stabilizing Employment, which believes that by intelligent study and handling, periods of unemployment can be reduced and perhaps eliminated entirely.

The general attack, which is to be made upon unemployment in Cincinnati and surrounding territory, has been outlined by a committee of citizens, appointed by C. O. Sherrill, City Manager, at the request of the Department of Public Welfare.

This citizens' committee in its report to the City Manager has recommended that the group to supervise the entire movement be known as the Permanent Committee on Stabilizing Employment and that its studies and recommendations embrace Hamilton County, Ohio, and Kenton and Campbell Counties in Kentucky. The work is to be carried on through ten sub-committees, which are to be organized on a functional basis.

Phases of the problem to be handled by these ten committees are as follows: State-City Employment Exchange; Continuous Employment; Temporary Employment; Public Works; Cooperation of Agencies; Budget and Finance; State and National Cooperation; Transients; Fact Finding; Publicity and Education.

Just what the general duties of each of these committees are to be has been outlined by the citizens' group in its report as follows:

The Committee on State-City Employment Exchange will cooperate with the Exchange in developing a system of classification of applicants, methods of forming contacts with the employment departments of factories, and other contacts which shall make more effective the placing of the unemployed.

The committee dealing with continuous employment will undertake to encourage the introduction of methods which will stabilize employment; such as suggesting in times of stress the part-time employment of the entire employee group, rather than the full-time employment of only a part of them. It will strive to work out with the employers of labor and others interested, a method of reporting the per cent of activity of business so that fluctuations in employment may be followed by the committee. It may suggest capital investments which will furnish labor during slack periods.

The Committee on Temporary Employment is to study the possibilities of odd jobs about the home, factories, etc., to ascertain possibilities in placing the unemployed during times of stress. Use of unemployed men on public works will be encouraged by the Committee, which will confer with the cities, villages and counties on construction and work programs and the type of men needed. This group will encourage also the prosecution of public works during slack periods of employment.

A Committee on Cooperation of Agencies will study the coordination of public and private social agencies that have to do with handling the residue of the unemployed during periods of stress.

Financial needs are to be outlined by the Committee on Budget and Finance, which will have submitted to it the budget and requirements of the various committees and will then study the means of financing the work of the Committee and the securing of funds if needed.

The Committee on State and National Cooperation will analyze proposed state and national legislation on employment so that the point of view of the community may be expressed on contemplated legislation. This Committee will cooperate with any state and national action that may be taken to stabilize employment or to handle unemployment situations when they arise.

Phases of the transient problem will be studied by a committee to cooperate with the Transient Bureau, soon to be a part of the Public Welfare department of the city, so that transient and homeless labor may be taken care of in a sensible way. This committee will inform itself on the supply of labor and will discourage outside labor from coming to metropolitan Cincinnati at times when it is not needed.

An active Fact Finding Committee will be responsible for assembling the facts secured through the various committees, and for engineering research methods that will give a clear indication of the labor conditions in the metropolitan district..

The last committee, that on Publicity and Education, will inform the public on the employment situation and announce frequently the results of the Committee's activities. It is likely that it will become familiar with the opportunities for vocational training and for the training of the handicapped, and in other ways formulate programs which will further the education of workers to aid them in gaining suitable positions.

All this work will be divided in most instances among additional subcommittees.

Working in conjunction with the official committee will be two groups making surveys—one to cover the economic possibilities for negroes in Cincinnati and vicinity and the other considering the effect of married women in industry and business.

A Memorial Pool, Privately Financed, Hygienically Designed, Municipally Operated

By H. CLAY TATE

MUNICIPAL REPORTER, *Illinois State Register*, SPRINGFIELD, ILL.

COMMUNITY cooperation, cemented with sound financial and sanitation principles, has made available for Springfield, Ill., one of the most modern municipal swimming pools in the country. Memorial Pool, built with funds obtained from mortgage bonds, and dedicated to Springfield soldiers and sailors of all wars, opened its second season this spring in excellent condition.

Completion of the pool in 1928 culminated endeavors covering a period of seven years. Progressive citizens resented the use of a filthy lagoon which provided the only outlet for aquatic recreation in the city. The question of constructing a modern swimming pool came to the fore in civic club and society discussions in 1921, but no tangible results were seen at that time.

In 1926 the American Business Club of the city sponsored a benefit band concert and turned the $2,455 received over to the Pleasure Driveway and Park Board as a swimming pool promotion fund. Almost a year was spent by the Board in collecting data and in selecting a site. It was estimated that a modern pool would cost $100,000. Means of financing the project were considered, and the municipal bond issue route—a method looked upon with disfavor by local taxpayers—was rejected. It was decided that the formation of a private corporation to finance the project would be the next best step.

Consequently, in February, 1928, Soldiers' Memorial Pool, Inc., was formed and organized under the laws of Illinois for the purpose of acquiring land and erecting the necessary buildings and structures for a municipal swimming pool. Officers of the corporation included the cream of the city's executive talent. One month later the four banks of the city agreed to furnish $50,000 for the project with first mortgage bonds as security, if an additional $50,000 were subscribed by citizens. Within a short time the amount was oversubscribed by interested parties, who took second mortgage bonds as security.

M. F. Hasbrook, of the Hasbrook Corporation, New York City, was employed to cooperate with Helmle and Helmle, Springfield architects, in making plans for the pool. A large tract of land was purchased in a convenient location for $18,500. The seller subscribed that amount in second mortgage bonds.

The pool was completed and turned over to the Pleasure Driveway and Park Board June 16, 1928, at which time ex-

VIEWS OF THE SPRINGFIELD, ILL., SWIMMING POOL AND BATH-HOUSE
At top, the children's pool; center, main pool; below, front of bath-house

penditures totaled $103,438. The Board has complete charge and collects all revenue from the operation of the pool. It guarantees to pay $10,000 annually on the principal, in addition to interest and overhead. Fixed annual expenses have been estimated by the Board as follows: bond retirement, $10,000; interest, $6,000 (reduced as bonds are retired); overhead, $3,000 a month for the three summer months. That makes a total yearly outlay of $25,000.

After getting off to a late start in 1928, the Board took in $19,500 during the two-and-a-half months the pool was open. Rates are 50 cents for adults and 25 cents for children, with a 20 per cent discount for coupon books. Suits and towels are furnished at that price, but no further discount is allowed if the individual provides his own suit. Of the total amount received, 40 per cent is used to retire bonds.

The plant consists of a brick bathhouse equipped with all modern facilities making for sanitation. The house faces the south. Just north of the bathhouse is a children's pool, 100 by 30 feet and ranging in depth from 12 inches to 3 feet, 3 inches. North of the children's pool about 25 feet is the main pool, 165 by 100 feet. It ranges in depth from 3 feet, 6 inches to 12 feet. Underground between the two pools are four filters, and the chlorinators. The capacity of the pool is 800,000 gallons. Water is drawn out at the bottom and runs in near the top, completely refilling the pool every eight hours.

The pool is so constructed that no one can enter it without passing under a shower. Caretakers are alert to detect any youngsters or others who show any signs of dirt or contagious skin disorders. Some are sent back to the showers, and others are refused admittance. All swimming suits, regardless of whether they belong to the pool or to the individual, are sterilized on the property before each use. A weekly summary is furnished the Board and the City Superintendent of Health by the City Chemist, and the water stays at drinking-water purity by actual scientific test.

It is the plan of the Board to reduce prices as the indebtedness is decreased. In order to make the pool of greatest use to the largest number, the Board has cooperated with the Playground and Recreation Commission in arranging free days for children. Over 12,000 children were admitted free in that manner during the first year of operation.

The financial plan has proved so satisfactory that the construction of additional pools as needs arise is certain to follow the same course. The "user-payer" plan has proved successful.

Dr. Fosdick on Religion and Play

WITH the *physical* value of play now generally accepted by leaders in public health, and the *educational* value of play increasingly recognized by the public schools, it remains for our leaders in religious thought to proclaim more fully than heretofore the *spiritual* value of play. A clarion note in this motif has been sounded in a recent sermon and a subsequent radio address by the Reverend Harry Emerson Fosdick, of New York. Through the courtesy of Dr. Fosdick, THE AMERICAN CITY has the privilege of publishing the following excerpts from his sermon on Religion and Play as preached at the Park Avenue Baptist Church, New York, on May 5, 1929:

"Play is one of the most important spiritual factors in human experience. This needs to be said in the church because the church so commonly has shut play out as though it lay beyond the régime of the church's interest. Moreover, behind this apathy of the church about play-life as though it were a bagatelle, a trivial appendage to more serious business, there lies a positive antagonism to play. Listen to this from a denominational book of discipline in America in 1784, laying down rules for a school:

> "'We prohibit *play* in the strongest terms. . . . The students shall rise at five o'clock in the morning, summer and winter. . . . The students shall be indulged with nothing which the world calls *play*. Let this rule be observed with the strictest nicety; for those who play when they are young, will play when they are old.'

"This attitude has a long history behind it. A learned man in medieval Europe said, 'A young girl should never play; she should weep much and meditate on her sins.'

"That, of course, is psychological insanity. To bottle up the play-life of boys and girls or to pervert it to evil ends is to wrong them at the center of their characters with a hurt that nothing can make up for. All hail, then, to the Boy Scouts and the Girl Scouts and the Girl Reserves and playgrounds and recreation centers and boys' clubs and girls' clubs and all the agencies through which the church and community reach out to-day to make the nation's play-life more beautiful and healthful. There is no spiritual welfare in the community without that.

"Some of us look back on a glorious youth. The boy is father to the man. What happened to us as boys made us, dug in our hearts the basic channels through which the deepest reactions of our lives still are flowing. For one, I know that among the most saving influences of my youth was the opportunity for wholesome play, so beautiful that I look back on it yet with boundless gratitude. Not one boy of that old gang went permanently wrong. Our play was right. We roamed the woods. We fished the streams. We built our shanties by the brookside. We played our games. It was a great boyhood.

"And now I walk the city streets and watch the boys and girls. Of course we have a crime wave. We are making criminals in this city faster than we can build jails to put them in. It is estimated that out of every one hundred boys in Manhattan eighty spend their leisure time habitually upon the streets, and that of all the things they can do upon the streets fifty per cent are inimical to character and twenty per cent downright illegal. Put yourself in the place of those boys and girls upon the streets. This is a law-abiding universe. You cannot gather grapes from thorns or figs from thistles.

"Already there are families in this congregation who come saying good-by for the summer. You are going out into the country now in May. Your children are going to have fine play. Forgive me if I say it to you almost fiercely: Do not dare leave this city for the summer without generously remembering those agencies that care for the boys and the girls of the streets. For we have our choice. We will support boys' clubs, girls' clubs, playgrounds and summer camps or we will support Sing Sing and then some more Sing Sings. As for me, sometimes my heart is sick because I know that whereas I can help one person here, there are thousands of fine youths on the streets of this city whose possibilities are being thwarted because they have no decent place to play."

To Keep the Normal Boy Normal

ACCORDING to Judge Austin E. Griffiths of the Juvenile Court of Seattle, as quoted by the National Probation Association, "The boy in the city lacks almost every opportunity which comes to the boy in the small community. His baseball field is gone; his swimming hole is gone; his contacts with the fellows in school are affected by racial and economic conditions. He lacks entirely those normal methods of expanding his young life which come to boys in smaller communities. Our problem primarily is not to save the abnormal boy, but to keep the normal boy normal."

Small Dam Clears Up Unsightly Area

By HENRY W. TAYLOR
CONSULTING ENGINEER, NEW YORK

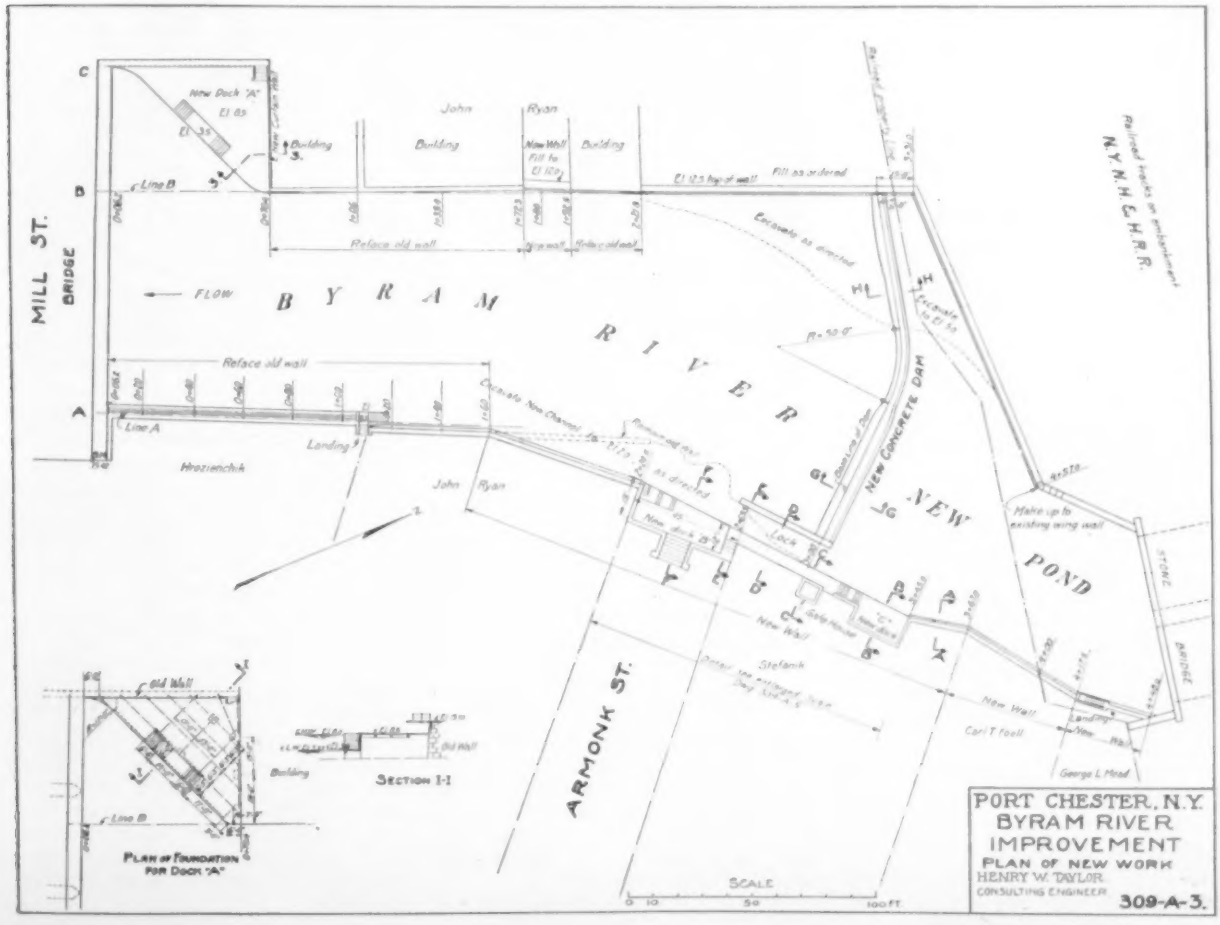
THE municipalities of Port Chester, N. Y., and Greenwich, Conn., combined to improve the sanitary and esthetic conditions in the vicinity of the Byram River, which is the boundary between the two states. The improvement also provided a recreation center in the way of a skating pond and swimming pool, and eventually a parkway along both shores will naturally result.

The Byram River has a watershed of about 30 square miles, and the flow from the upper reaches of this shed are intercepted by the New York City water-supply system, with the result that the summer flows are inconsiderable. The stream is also a tidal stream, with a tide variation of about 7 feet which completely drains the river as it passes through Port Chester and East Port Chester. The resulting condition was both unsanitary and unsightly and was clearly visible from the New York, New Haven and Hartford Railroad tracks and from the Boston Post Road.

DEDICATION OF THE LOCKS

Difficulties Encountered

Although only $50,000 was involved in this project, and the structural features included were not of large pro-



BYRAM RIVER AT LOW TIDE

portions, the necessary legislative actions, approvals, etc., to promote the project were extensive. Congressional action was required to permit the construction of a dam across a tidal river, and Congress required the approval of the United States Army Engineers and limited the time of construction. The New York State Legislature passed an act to validate a bond issue for an interstate cooperative project, and two New York State Departments, together with the New York State Land Board and the Engineers of the State of Connecticut, passed on the plans and construction.

Lockage Provided

As there was a considerable amount of boating in the reach of the river above the dam, together with winter boat storage, it was necessary to install a lock in the dam with clear measurements of 35 feet in length and 10 feet in width. It was feared that any form of a lock-gate other than a sluice-gate for the up-stream control of the lock would give rise to so much leakage in the summertime as would draw down the pond during the low flows of the river. A horizontally sliding and specially designed gate was installed, 4 feet 6 inches in height and 10 feet 6 inches long, consisting of metal plates with structural members and bronze seats. The lower gate of the lock was of the swing type, but was also built of metal with wood trim at contacts between the gates and the lock walls.

In order to avoid serious land flood-age complications, the height of the dam was set at approximately the mean high-tide level, so that at high tide the water-level on either side of the dam is practically equalized and the average water-level behind the dam is maintained at the former high-tide level.

HIGH-TIDE CONDITION IN BYRAM RIVER MAINTAINED BY CONSTRUCTION OF DAM

Construction

The dam was built of concrete, and the easterly section was laid on rock or a good quality of blue clay. The western section lay on an area where there occurred a sharp drop in the rock contour to a depth which rendered reaching it impracticable, and the footings of the dam in this section are placed on a soil of adequate bearing value and steel sheet piling was either driven to rock or to a depth of about 16 feet below the dam footing. New river walls were constructed which tie the dam back to the abutments of the railroad masonry culvert, and in these walls were constructed docks and approaches to the pondage behind the dam, while a large dock the full width of a street was installed at the foot of Armond Street, which lies just below the dam and lock, and gives access to the tidal water. A lock-house was installed at the head of the lock, for the control of the lock-gate, and the drain and flood valves. The river walls provide a 6-foot free-board above the crest of the dam and allow for a torrential flow over the dam from this small watershed without flooding adjacent properties.

The cost of the project was about $50,000 and was shared, by agreement, by the two municipalities. The lock is operated by one of the boatmen on the shores of the river, with whom arrangements are made in advance in case boats are to be brought up the river past the dam. The pond behind the dam is used as a swimming and boating pool in the summertime, and in the wintertime as a skating pond.

Arlington, Mass., Active in Fire Prevention Work

MORE than 600 mercantile and manufacturing establishments are inspected at least twice a month and all dwelling-house cellars once each year in Arlington, Mass., a city of about 30,000 inhabitants, according to the National Fire Protection Association.

The inspection of homes is done with the consent and cooperation of the residents and conducted by firemen during their off-duty periods. Only 18 of the more than 400 calls received by the Fire Department in 1928 were for fires in mercantile or manufacturing plants under regular inspection, and two of the 18 were incendiary.

Insuring City Property Against Fire

Self-Insurance Recommended Only for the Largest Cities—How Greater Safety from Fire and Lower Rates Are Obtainable Through the Commercial Insurance Companies and Rating Bureaus

By O. J. SWANDER
Engineer, Kansas Inspection Bureau, Topeka, Kans.

ADMINISTERING the insurance fund is one of the most perplexing problems of municipal management. City officials are divided upon the merits of a municipal self-insurance replacement fund as compared to private company insurance. The majority of cities carry some fire and tornado insurance on city property in regular insurance companies, and a good many cities insure their property to practically full value. On the other hand, many cities carry no insurance; of these cities, some have a self-insurance replacement fund, while others have no provision for meeting losses except by special bond issues or by means of the general tax fund.

There are numerous examples of cities that have started self-insurance funds and have had a serious loss before the fund was large enough to be of any material assistance. One of the outstanding failures of municipal self-insurance was in Montreal, where an insurance fund was started a number of years ago. In 1922, when the fund had reached a total of only $200,000 the City Hall was destroyed, with a loss of about $1,500,000.

From a business standpoint, one of the strongest arguments against municipal self-insurance is the fact that most railroads, chain store systems, and large oil concerns insure in regular insurance companies. Some of these corporations, which have their properties scattered more than the property of any one city can be distributed, pay premiums on several hundred million dollars of insurance.

Why a Municipal Insurance Fund?

There are, it is true, a few large cities with risks sufficient in number to justify carrying their own insurance. In a recent publication by the International City Managers' Association, this body considered that cities having over 200 distinct risks could safely carry their own insurance. Cities having less than this number cannot afford to go without any insurance and should insure in private companies.

The only reason for establishing a municipal self-insurance fund is to reduce the cost of insurance, and cities with adequate resources and a sufficient number of risks to enable them safely to assume their own liability are interested in knowing whether or not the saving is adequate compensation for the risk they must bear. While there are numerous examples of failures of municipal self-insurance plans, there are many examples also of cities that have carried insurance for twenty-five or thirty years without a single loss ever having been paid. Insurance is such an uncertain business that there is no definite way of telling what the saving in any one city would be, nor even of telling what the average saving would probably be if all cities adopted a self-insurance plan.

For comparison, it is reasonable to assume that the loss ratio for insured public property will be approximately the same as the loss ratio on all property, for while, on the whole, public buildings are among the better risks, they receive a correspondingly lower insurance rate. There is considerable evidence that on one class of public property, namely, schoolhouses, the fire loss ratio is higher than on property in general. The fire loss ratio on all property averages slightly over 50 per cent of the premiums paid. Probably half of this, or one-quarter of the insurance cost, could be saved by a municipal self-insurance fund, provided the loss ratio could be kept as low as when the property was insured in regular companies.

A Policy Fraught with Dangers

With every effort being made to offset recent increases in municipal expenses, city officials are sometimes tempted to cut out the item for insurance premiums. When this is done, a self-insurance fund is usually established. Such a policy is fraught with many dangers and should not be undertaken without the most careful consideration and thought. Very few cities have a sufficient number of risks to enable them safely to assume their own liability, and still fewer cities have adequate resources to bear the losses inccurred by large conflagrations. In cities of ordinary size, it is difficult to establish a fund large enough to care for the most serious fire likely to occur; a fund for self-insurance should be at least equal to the value of the city's most expensive building.

O. J. S.

An Example of What Not to Do

Uninsured city property is usually a less desirable risk than the same property would be if it was insured. The inspection service provided by company engineers and by the engineers of the various rate-making organizations keeps the fire hazard down to a minimum, thus tending to reduce fire losses. The case of a municipal electric plant in Kansas is illustrative. Until about five years ago, this city carried insurance on its electric power-plant and had a fire insurance rate of 0.33 on the building and 0.37 on the contents. By carrying up to 80 per cent of value, and by attaching a reduced rate contribution clause, these figures could have been reduced to 0.13 and 0.26 respectively. The plant was of fire-resistive construction, with the usual fire hazards incidental to the operation of a steam electric plant. Fire insurance companies had received only fair cooperation from the city, and no large expenditures had been made to reduce the rate. By small changes in the plant, the rate could have been further reduced.

During the time that the city carried no insurance on this property, changes were made in the plant without the assistance and advice of company or bureau engineers. A recent inspection revealed that the rate on the building has increased to 1.29, and the rate on the contents to 1.42. Without exception, the increases were for changes that could have been avoided at negligible cost and little or no inconvenience. For example, when new boilers were installed, part of the boiler-room roof had to be raised, and, instead of using reinforced concrete, which had been used in the original structure, or even using metal or asbestos on steel supports, a large

frame roof house was built. The metal boiler breeching was carried within a few inches of the wall of this roof house, and, instead of providing a small underground auxiliary tank for fuel oil, the fuel oil pump is supplied by gravity from large above-ground oil tanks. A break in the oil piping could flood the entire plant with burning oil. An addition with an ordinary wooden roof was built, and the space between a nearby ordinary joisted masonry building was covered over, making one fire area of the two buildings. Several oil-cooled transformers were set up in the building, employees were permitted to keep their cars in the plant, and numerous other changes affecting the rate were made. Had the property been insured in a regular insurance company, with the attendant inspection service, the rate would probably be lower now than it was five years ago. Certainly, no fire insurance company nor city could afford to carry the present risk at the rate in effect five years ago. Then, too, during the same period, the tornado rate was almost doubled on account of the inferior construction.

Insurance Experts Help Rate Reduction

While this case may be an extreme one, it is by no means an isolated one. Almost without exception, when extensive changes are made without the advice of an insurance expert, the rate will be increased. It is practically impossible to secure the services of a competent engineer except from insurance companies or rating bureaus, because the work is so specialized and detailed that local agents, architects, and engineers cannot be of much assistance.

This service, which is offered free, provides one of the best and most practical means of reducing insurance cost. Thousands of private property owners use the service daily. It is almost always possible to recommend changes in the property which will give a credit in the insurance rate. This service can be readily secured by having the local insurance agent secure, from the inspection bureau having jurisdiction, an analysis sheet or detailed make-up of the rate with suggestions for reducing the hazard, together with a list of credits for each recommendation. Some of the more common things affecting insurance costs are the storage of gasoline, lubricating oil, and other inflammable materials, exposure from nearby buildings, especially if of frame or other light construction, and defective or unsafe construction of the property.

Importance of Fire-Resistive Construction

A certain way to reduce fire waste and insurance cost is by better construction. Public buildings should, by all means, be of fire-resistive construction, with openings between floors guarded, chimneys and flues safely constructed, and all exposures protected by standard fire-doors or by wire-glass windows set in metal frames. Buildings like electric and water plants with only incombustible contents may safely be of incombustible construction; that is, with masonry walls and a roof of concrete, tile, asbestos, metal, or other incombustible material, supported on exposed steel.

With the schedule method of rating used in most states, it is possible to tell very closely in advance of construction what the rate on the completed building will be, and cities should avail themselves of this service. By using only ordinary care, and without expending large sums for safeguards, it is possible to secure a rate of from 10 to 20 cents or less per $100 of insurance. With a rate of 10 to 20 cents, any saving made by a city assuming its own liability would be negligible. It would take hundreds of years to accumulate a fund large enough to cover a total loss on a building of this kind.

It is not safe to assume, because a building is of fire-resistive or incombustible construction, that no insurance is necessary. A recent fire in Topeka, Kans., proved this. The fire occurred in a modern fire-resistive office building. The occupancy where the fire originated was a small printing shop similar to ones frequently found in high school buildings. Damage to the building and contents was slightly over 7½ per cent of the combined value of building and contents, or, approximately, $7,000. The fire was extinguished by chemicals alone, and the loss was almost all due to smoke damage. Numerous examples can be cited of large losses in fire-resistive buildings.

Appraisals as an Aid to Intelligent Insurance

Another important thing to consider is the ratio of the insurance carried to the value of the property insured. There is little uniformity in this respect; some cities carry only a small percentage, and others carry practically up to full value. In one municipal electric plant inspected recently in Kansas, insurance carried on one engine and generator was more than 50 per cent in excess of the estimated value of the equipment. The policy had been renewed from time to time without taking into consideration the depreciation of the equipment. A similar unit in the same plant was covered to only a small per cent of value. Needless to say, this was a gross waste of insurance premium, and the city was advised to cover all power-plant equipment under one policy. Several other municipal plants have been found where one or two pieces of equipment were insured to practically full value while the remainder of the equipment was totally unprotected. A policy for the same amount on the power-plant equipment without specifying any particular unit to which the insurance applied, would protect all of the equipment to the full amount of the policy.

In order to cover all values properly, an appraisal of the property should be made at least annually, taking into consideration unit costs, rates of depreciation, etc. In small cities, this appraisal can be made by the city manager, city engineer, or other city officials, but in larger cities a professional appraisal is advisable.

What the "Co-insurance" Clause Means

Where the co-insurance plan may be used, such a clause should be attached to policies. Under such a plan, the city agrees to carry up to a certain specified percentage of value, usually 80 or 90 per cent, for which consideration a reduction of from 10 to 60 per cent is made. The better types of construction under good public fire protection thereby secure a substantial reduction. Under this plan, if the city fails to carry insurance up to the specified amount, the city becomes an insurer to the extent of the deficit, and consequently must stand its proportion of any loss. For example, if the insurance carried is equal to only 50 per cent of value, and the city guarantees to maintain to 80 per cent, only five-eighths of a loss may be collected.

Co-insurance is applicable only to property under municipal fire protection, because the plan is based upon the assumption that the loss, if any, will be only partial. Conversation with city officials reveals that many do not understand the intent or working of the plan and hesitate to use it, often advancing the reason that they think adjustment difficult in case of a fire. Some cities even carry insurance up to 80 per cent of value and refuse to have a co-insurance clause attached to the policy. The co-insurance plan was invented for the protection of those who, for their own protection, wish insurance to reimburse themselves for the most serious loss that could occur to their property. Obviously, a loss of 5 to 10 per cent of value is more likely to occur on a given property than a loss of 80 or 90 per cent of value, and as the ratio of insurance carried to the value increases, the rate decreases.

Tornado Insurance

Within certain narrow limits, the cost of tornado insurance can also be regulated, although to a much less extent than can fire insurance. Frame, joisted

masonry, and reinforced concrete constructions take different rates, and the additional cost of insurance for inferior construction can be balanced against the higher cost of wind-resistive construction. The number and type of roof houses and superstructures also have a bearing on probable tornado damage.

Certainly, every city needs to know that it is adequately protected against any loss possible to occur, and that any loss from fire or tornado will not tax the resources of its citizens, or handicap the city in its future growth. In many cities and towns, the loss of a large schoolhouse or the water or electric light plant would mean that the tax rate would have to be raised considerably. The growth and welfare of a city depend in no small measure upon the handling of the insurance problem in a business-like manner, and every city should recognize this fact and take the necessary precautions to safeguard its future.

Proposed Treatment of Streets in Residential and Business Zones Under an English Regional Plan

SUGGESTIONS for the arrangement of the roadways and footways in streets of various types in the residential and business zones of the North Middlesex section of Greater London, are depicted in the accompanying diagram from the regional plan prepared for that district by Messrs. Adams, Thompson & Fry, town planning consultants.

For the main trunk thoroughfares a width of not less than 100 feet with a building setback of not less than 20 feet, or 70 feet from the center of the road, is proposed. For other first-class streets, a width of 80 feet with a building setback of 20 feet, or 60 feet from the center of the road, is advised, while for second-class streets a width of 60 feet with a building setback of 20 feet, or 50 feet from the center of the road.

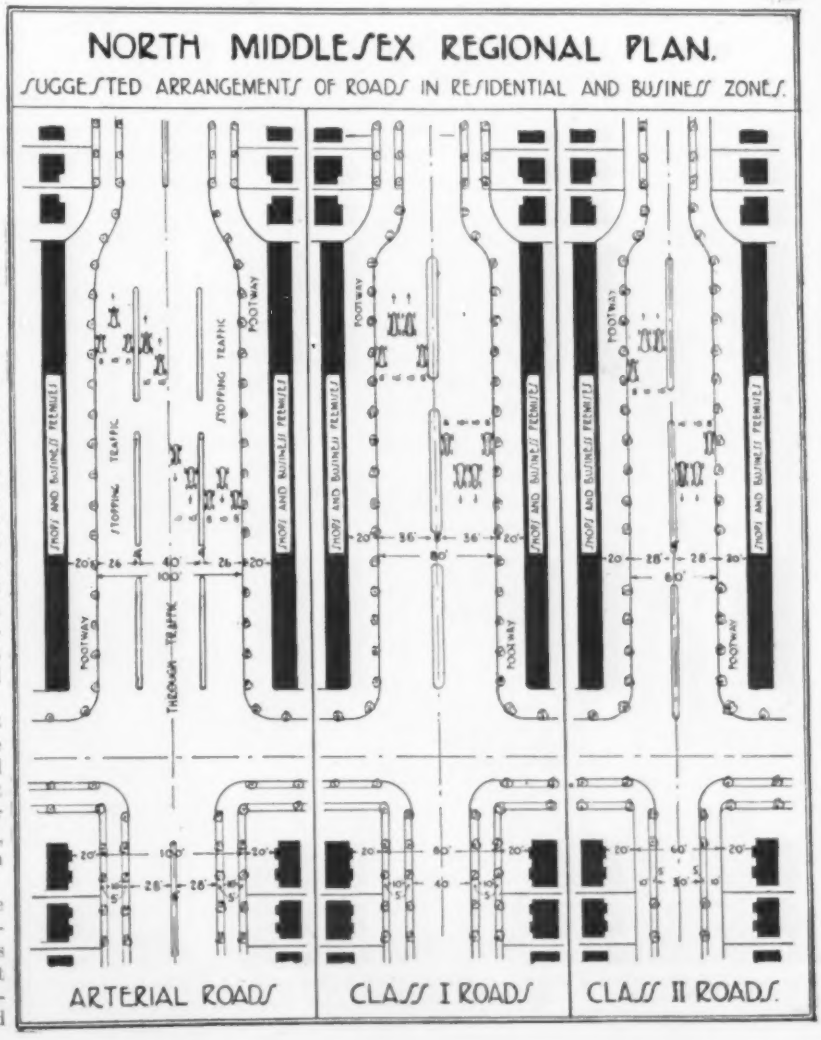
Road Widths for Traffic Purposes

These widths are based upon the requirements of anticipated future traffic. It is assumed that a width of 10 feet is necessary for the free flow of each stream of traffic. In the case of second-class streets, provision is urged for the accommodation ultimately of three streams of traffic and consequently a roadway 30 feet wide. To this is added two footways, which, to allow for the planting of trees, are to be not less than 10 feet. Thus a total width of 50 feet represents the minimum to be allowed for traffic purposes. As the report holds it to be desirable that provision be made for grass or gravel margins between the footways and the roadways, both to keep vehicular traffic at a safe and comfortable distance from pedestrians and also to improve the appearance of the street, an extra 10 feet (making 60 feet in all) is advocated wherever possible.

In the case of the first-class streets, it is considered that provision should be made for four streams of traffic, the paved surface therefore to be ultimately 40 feet wide. With an allowance of 20 feet for the footways and margins on each side, the total width advocated is not less than 80 feet.

For main trunk roads, a paved surface 40 feet wide is urged for the initial construction. The report says experience has shown that for a single roadway 40 feet is the maximum safe width, and that beyond that it is better to keep the up and down traffic separate. For that purpose, two roadways each 28 feet wide (providing for two streams of fast traffic and one for slow and stopping traffic), with a series of islands 4 feet wide down the center, is the minimum accommodation suggested. Allowing 20 feet for each footpath (including a margin for tree planting) the total width, it is held, should not be less than 100 feet and it would be better to reserve 110 feet to allow 30-foot roadways and islands 10 feet wide. Building lines set back 20 feet from the fence line, are recommended on all arterial roads.

"We consider it particularly important," the report says, "that all buildings should comply with the general building line laid down for a road. It is sometimes suggested that shops and business premises would be injuriously affected by being set back too far from the road, and that they should accordingly be allowed to come forward in front of the normal building line. We suggest, however, that instead of bringing these buildings nearer to the road, it is obviously better to bring the road nearer to them. Shops and business premises inevitably give rise to increased traffic, both vehicular and pedestrian, and they therefore require wider footpaths and wider carriageways in front of them. The most effective method of meeting these requirements is to maintain a uniform building line and utilize the forecourts of the shops for a footpath 20 feet wide, thus allowing space for a subsidiary carriageway to accommodate vehicles stopping in front of the shops without interference with the through traffic using the road. Suggestions for the layout of roads in shopping areas are indicated in the accompanying diagram also."



Diesel Engine Causes Large Savings in Operation at Tallahassee Municipal Electric Plant

By BEN H. BRIDGES

CITY AUDITOR-CLERK, TALLAHASSEE, FLA.

THE Tallahassee power and light plant was originally built by the city with a bond issue for $16,000 floated in 1902. The gas and water plants were operated by private companies until the city purchased them from the American Pipe & Construction Co. in 1908. The stipulated purchase price of the water plant was $75,000 and the price of the gas plant as stipulated in the sale was $1.00 The power and light plant was not successfully operated by the city for a number of years. Among the bonds listed as liabilities against the City of Tallahassee is a judgment funding issue dated May 1, 1910. This issue of bonds, as may be surmised, was to retire a floating debt for supplies for the electric light plant.

In 1908 the light, gas and water plants were placed under a single management, known as the Board of Public Works. This Board did great service for the city in operating the three plants. Taken as a whole they showed a profit from operation from 1910 to 1919, and the only retirement of bonds prior to commission-manager government was by this board.

The year 1919 showed a deficit in operation attributable to the fact that the light and power plant was completely destroyed by fire in April of that year.

New Plant Decided Upon

The City Council then determined to build a modern power and light plant and also bring the gas and water plants to more efficient and up-to-date operation. In 1920 a bond issue was floated for $175,000 for this purpose. One of the best known engineering firms of the South was employed. With the proceeds of the sale of this bond issue a new fireproof building with 150-foot radial brick stack was constructed and equipped with one 500-kw. Allis-Chalmers turbo-generator; two Wheeler jet condensers; one 175-hp. Sterling boiler and two 225-hp. Badenhausen boilers.

The exterior of the power plant is shown in Fig. 3, the brick portion of the building being the original plant. The switchboard and the end of one turbine, on the operating platform, are shown in Fig. 2. The gas plant was converted into a Tenney-Lowe water-gas plant and the old coal distillation process abandoned. The water works was completely motorized. Coincident with the construction of these plants the form of government of Tallahassee was changed from the council-mayor to the commission-manager form. Since the adoption of this form of government, the operation of the publicly owned utilities has greatly grown in size and efficiency.

During the year 1928, the net donation from the utilities for the purpose of running the government was $44,180.55. A complete system of accounting is maintained and all proper charges are made to each plant, such as: fuel used; labor and material used; approximately 60 per cent of the overhead of the expenses of the government; judgments; auto expenses; insurance; bad debts; city taxes; interest on utility bonded debt; depreciation of 5 per cent of the entire utility assets; and amortization of discount. We invite everyone interested in the operation of the Tallahassee utilities to apply for reports. In this connection a detail report covering every activity of the city has been

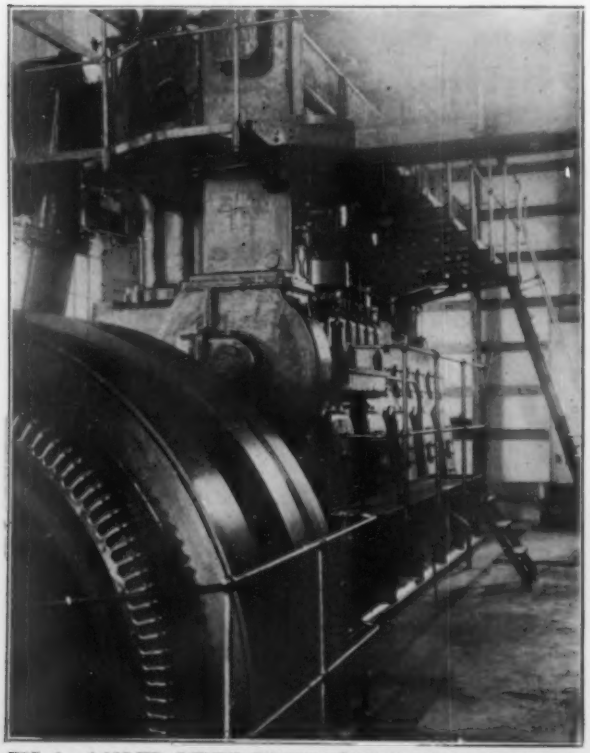


FIG. 1.—1,125-HP. DIESEL ENGINE DRIVING 750-KW. GENERATOR IN TALLAHASSEE MUNICIPAL ELECTRIC PLANT

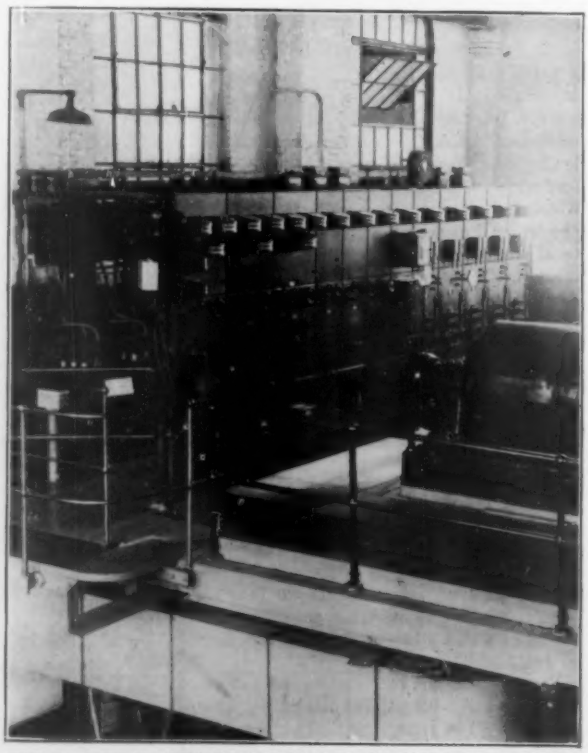


FIG. 2.—END OF OPERATING FLOOR, SHOWING SWITCHBOARD AND PART OF STEAM TURBINE

made annually since the beginning of the commission-manager form of government and an audit made by well-known accountants with their reports included in published reports. Fig. 5 shows a comparative six-year summary for the various utilities.

Comparative Costs

In September, 1927, the management reached the conclusion that it was necessary to have additional generating equipment in our power plant, which resulted in the purchase of a 1125-hp. De La Vergne diesel engine connected to a 750-kw. General Electric generator. The corrugated iron addition in Fig. 3 being the temporary addition for housing this equipment, access to the diesel room was made by taking out windows in the upper deck and knocking a door through the lower. Fig. 2 shows the diesel switchboard panel and the platform extension connecting the operating floor with the diesel engine platform.

Fig. 1 shows the diesel engine operating under load. This engine was running 30 days after shipment from the factory and about 15 days after the bedplate was placed on the foundation. The city's load was increasing so rapidly that a breakdown of any steam equipment would mean that some of the circuits had to be pulled. As a result speed was the essence rather than beauty and permanence. It is expected that the addition will be made to conform with the old building and a temporary end placed in the new part ready for additional diesels as the necessity for more power arises.

In order to get the relative costs from operation of the diesel plant and steam plant a very careful study has been made. For this purpose the months of March to September, inclusive, 1927, were taken for the steam plant and the months from March to September, inclusive, 1928, were taken for the diesel plant. This period of comparison is a bit unfair to the diesel plant, as May and June of 1927 covered an increased load over the same period of 1928, due to the fact that the biennial session of the Legislature was being held at this time. It must be understood that during the time of the operation of the steam plant there was no other generating equipment. However, during the time of the operation of the diesel plant the steam plant was equipped with oil burners and used as an auxiliary, helping to carry the peak load from time to time. Statement of the operation of the steam plant is as follows:

FIG. 3.—EXTERIOR OF POWER-PLANT, WITH TEMPORARY ADDITION FOR DIESEL ENGINE AT LEFT

SWITCHBOARD COST OF ELECTRICITY GENERATED BY STEAM PLANT, MARCH TO SEPTEMBER, INCLUSIVE, 1927

Detail Costs

Code:		
601	Steam Plant Administration:	
601-E-33	Depreciation at 5%	$5,276.35
601-E-18	Interest at 5%	5,276.35
		$10,552.70
602	Production Expense:	
602-A-3	Salaries & Wages	$5,028.53
602-B-3	Up-keep of Grounds	6.54
602-B-19	Telephone & Telegraph	39.52
602-B-22	Ice and Water	300.00
602-B-24	Painting	49.29
602-B-31	Repairs to Equipment	1,509.34
602-B-33	Repairs to Building	137.57
602-B-38	Auto Allowance	125.00
602-B-42	Repairs to Pumps	12.71
602-B-43	Repairs to Boilers	695.22
602-B-44	Repairs to GE Generator	142.89
602-B-45	Repairs to Allis-Chalmers Generator	430.64
602-C-2	Fuel used	25,427.59
602-C-9	Equipment Supplies	26.55
602-C-17	Tools	272.48
602-C-21	Electric Supplies	35.98
602-C-23	Stores Consumed	84.90
602-C-25	Lubricants & Grease	444.16
602-D-5	Cement	15.40
602-D-8	Lumber	8.78
602-D-21	Packing	124.35
602-E-35	Insurance Bldgs. & Machinery	455.98
		$35,373.40
	Total cost, manufacturing operations	$45,926.10

Kwh. delivered for sale by steam plant during period 1,628,790.

Itemized cost per kwh.

Fuel	$0.015611
Salaries and wages	0.003087
Interest and depreciation	0.006482
Insurance and repairs	0.002077
Lubricants	0.000272
Other costs	0.000668
Total	$0.028197

Statement of the operation of the diesel plant is as follows:

SWITCHBOARD COST OF ELECTRICITY GENERATED BY DIESEL ENGINE, MARCH TO SEPTEMBER, INCLUSIVE, 1928

Detail Costs

Code		
901	Diesel Engine Administration:	
901-E-22	Depreciation at 5%	$2,333.32
901-E-18	Interest at 5%	2,333.32
		$4,666.64
902	Production Expense:	
902-A-3	Salaries & Wages	$3,270.37
902-B-15	Subscriptions to Periodicals	5.00
902-B-19	Telephone & Telegraph	8.25
902-B-31	Repairs to Equip. Spare Parts	830.35
902-C-2	Fuel Oil	8,175.00
902-C-9	Equipment Supplies	1.47
902-C-12	Office Supplies	34.42
902-C-17	Tools	46.00
902-C-25	Lubricants	925.60
902-C-29	Kerosene Oil	12.16
902-E-35	Insurance	394.21
		[illegible] $13,702.81
	Total cost, manufacturing operations	$18,369.47

Kwh. delivered for sale by diesel plant during period, 1,606,890.

Itemized cost per kwh.

Fuel oil	$0.005087
Salaries & wages	0.002035
Interest & depreciation	0.002904
Insurance & repairs	0.000762
Lubricants	0.000576
Other costs	0.000067
Total	$0.011431

A graph showing fuel and labor costs per kwh., covering a period from April 1, 1927, to October 1, 1928, has been prepared (Fig. 4). A study of this graph and the foregoing operating costs show a remarkable decrease beginning January, 1928. Further along, during the months of June and September, 1928, there is an upward curve. An interpre-

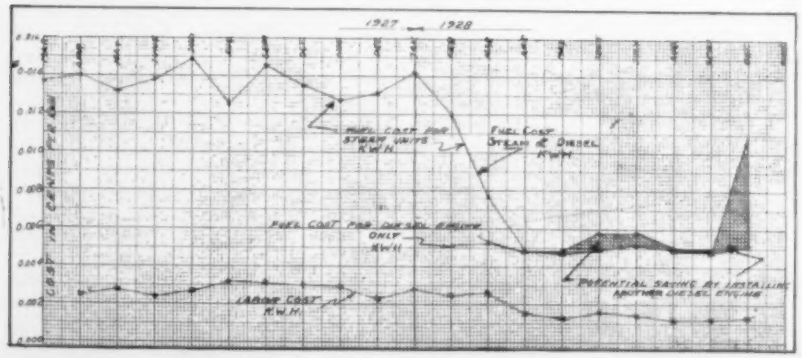

1927 — 1928
FUEL COST PER STEAM UNITS K.W.H.
FUEL COST STEAM & DIESEL K.W.H.
FUEL COST FOR DIESEL ENGINE ONLY K.W.H.
LABOR COST K.W.H.
POTENTIAL SAVING BY INSTALLING ANOTHER DIESEL ENGINE

FIG. 4.—GRAPHIC RECORD OF FUEL AND LABOR COSTS FOR 19-MONTH PERIOD, TALLAHASSEE MUNICIPAL ELECTRIC PLANT

Left-hand side (1927) shows costs for two 500-kw. steam turbines, with coal costing $6.50 per ton ($1.65 at mine). Right-hand side (1928) shows costs for 750-kw. diesel-electric installation, with fuel oil costing 5c per gallon (3.71c at seaboard), and with steam also used at peak loads

tation of this graph shows that the downward curve was occasioned by operating the diesel engine and that the total fuel cost per kwh. would have coincided with the fuel cost of the diesel only, which is operating at ½c per kwh., except for the fact that the steam plant was used at times with the diesel engine to help carry the load at the peak.

The labor cost per kwh., it will be noted, is materially less since the installation of the diesel engine, due to the fact that the services of some of the firemen were dispensed with.

The steam plant generated about 20 per cent more current than is credited to sales, this being used within the plant for auxiliary service. This shows an added feature of diesel savings, as the auxiliary power consumption is negligible.

For a better understanding of the savings made possible by the installation of diesel engines, certain data on fuels are given in the next column.

	Year Ending					
Revenue	Feb. 29, '24	Feb. 28, '25	Feb. 28, '26	Feb. 28, '27	Feb. 29, '28	Feb. 28, '29
Electric light	$73,035.52	$79,809.42	$90,536.03	$99,911.54	$120,158.87	$132,388.30
Power	33,252.91	39,197.54	36,106.04	40,106.03	56,486.75	58,555.21
Gas	25,295.77	26,326.54	32,420.55	40,365.71	47,984.19	55,763.89
Water	33,880.80	37,394.66	44,013.89	48,144.80	59,362.81	59,770.81
Miscellaneous	1,366.77	653.89	1,346.86	2,847.08	10,524.99	11,162.59
Total revenue	$166,831.77	$183,382.05	$204,423.57	$231,375.16	$294,517.61	$317,640.80
Operating expenses						
Electric plant fuel	$39,773.16	$36,260.89	$32,925.52	$33,509.80	$39,380.49	$8,926.57
Electric plant operation	16,798.98	18,153.33	22,000.44	24,980.81	24,670.74	17,791.90
Gas plant fuel	7,137.77	7,277.52	7,169.91	10,715.04	12,077.57	12,812.20
Gas plant operation	9,601.27	10,168.08	10,158.39	13,832.46	15,660.26	17,418.01
Water plant pumping	21,970.55	23,194.14	15,394.07	13,735.37	15,807.00	13,092.00
Water plant operation	7,410.32	7,013.83	8,049.90	11,771.95	14,004.55	10,739.93
Diesel engine fuel and	.....	.....	.....	.....	.....	13,066.50
Diesel Engine operation	.....	.....	.....	.....	2,794.46	9,389.47
Total operating expenses	$102,692.05	$102,067.79	$95,698.23	$108,545.43	$124,395.07	$103,236.58
Overhead expenses						
Office & administration	1,309.62	2,021.24	2,568.73	3,130.10	8,133.39	$8,113.91
Taxes	4,031.98	3,780.00	4,200.00	3,850.00	4,200.00	5,000.00
Interest	14,437.40	14,377.36	13,958.09	16,847.84	19,736.94	23,481.54
Depreciation	17,862.85	18,703.85	22,980.00	22,980.00	31,460.00	35,459.97
Amortization of discount	1,151.00	1,151.00	1,151.00	1,151.00	1,151.00	1,151.00
Miscellaneous	1,773.67	3,441.87	5,314.74	5,674.41	6,355.66	8,978.35
Total overhead expenses	$40,576.52	$43,475.32	$50,172.56	$53,633.35	$72,493.33	$82,184.77
Total expenses	$143,268.57	$145,543.11	$145,870.79	$162,178.78	$196,888.40	$185,421.35
Surplus profit	$23,563.20	$37,838.94	$58,552.78	$69,196.38	$97,629.21	$132,219.45

FIG. 5.—SUMMARIZED 6-YEAR COMPARATIVE PROFIT AND LOSS STATEMENT FOR TALLAHASSEE MUNICIPAL UTILITY PLANTS

Coal

Price at the mines	$1.65
Location of mine	Bardo, Ky.
Book price at boilers	$6.50
B. t. u.	15,500 minimum

Fuel oil

Cost at Jacksonville, Fla.	$ .0371
Cost at engine	.05
Gravity	23
B. t. u.	18,500 minimum

The rates charged in Tallahassee are, in general, similar to those in force in cities of the same population groups in this part of the country. They are as follows:

Electricity for lighting purposes

First 200 kilowatt-hours at	12½c per kwh.
Next 400 kilowatt-hours at	10c per kwh.
All over 600 kilowatt-hours at	6c per kwh.

Minimum charge, $1.00 per month.

Electricity for power purposes

First 200 kilowatt-hours at	7c per kwh.
Next 300 kilowatt-hours at	6c per kwh.
Next 500 kilowatt-hours at	5c per kwh.
Next 1000 kilowatt-hours at	4c per kwh.
All over 2000 kilowatt-hours at	3c per kwh.

Minimum hp. charge to be 50c per hp. or fraction, connected. Minimum charge, $1.00 per month.

Water

First 4000 gallons at	40c per M.
Next 3000 gallons at	30c per M.
All over 7000 gallons at	20c per M.

Minimum charge, $1.00 per month.

Gas

First 5000 cu. ft. @	$2.00 M.
Next 5000 cu. ft. @	1.60 M.
Next 5000 cu. ft. @	1.50 M.
Next 5000 cu. ft. @	1.25 M.
Next 30000 cu. ft. @	1.10 M.
Next 50000 cu. ft. @	1.00 M.
Next 10000 cu. ft. @	.90 M

To Prevent the Choking of State Highways, by Rational Design and Effective Zoning

CITY planning commissions and chambers of commerce throughout the state of California have recently received the following report of a Committee on Widths of State Highways, appointed by the California Conference on City Planning. In transmitting the report, which has had the approval of Director B. B. Meek of the Department of Public Works of the state of California, Charles H. Cheney, Chairman of the Committee, urges the application of the suggested principles in every city and county of the state.

1. State highways are acquired and built from public funds, and traffic on them should not be choked by the establishment of local business on abutting frontage, bringing heavy local traffic to clog up the through-state traffic, which in turn interferes with such local traffic and consequently the fullest development of local business.

2. Wherever it is likely that the local business zones will be established along state highways, additional roadway space or service roads for such local business traffic should be provided parallel to the main highway, but separated from it by parking strips.

3. Wider rights-of-way must be acquired to protect full use of state highways as follows:

All buildings along state highways should be required to be set back 80 to 100 feet from the center line of the highway, thus establishing a distance of 160 to 200 feet between buildings, making 30 to 50 feet available for local service roads and sidewalks in residential or business zones on each side of the original right-of-way.

4. All regions traversed by state highways and other principal through routes should be zoned for business, industry, residence or recreational purposes as soon as possible.

5. County and city authorities should take immediate steps to establish along all state highways and major traffic arteries, setback lines for the construction of future buildings and improvements; in business and industrial zones such setback lines to be 100 feet from the center of the highway; in residential zones, 80 to 100 feet from the center line.

6. Planning commissions should adopt rules for the filing of maps of the subdivisions, requiring dedication of the above-mentioned widths of right-of-way for state highways and for the establishment of setback lines as herein provided.

7. Future street lines and setback lines should be established now by cities and counties to avoid burdening the taxpayers with heavy damages in the future by cutting off or moving back buildings.

8. In general, it is recommended that state highways by-pass cities and congested centers as far as possible.

9. More attention should be given to proper space and arrangements for tree planting on state and other major highways. A sidewalk and planting space of 15 feet is essential, and 18 feet from curb to property line should be the general standard to allow for a good tree growth.

10. A committee should immediately study carefully the superhighways of Detroit and other cities which are now establishing two one-way lanes of travel with barriers between, for express traffic at 40 miles an hour in the center, and with side lanes, separated by barriers, for local traffic at 20 miles an hour, adjoining the property lines. These superhighways require from 170 to 200 feet of right-of-way, but are probably well justified because they speed-up through traffic, and give abutting property a chance to properly develop, without interruption from this through traffic.

11. The slowing-up of all traffic on our state highways, and the choking of both local and through traffic due to the continual increase of local business centers along main highways, should be a matter of grave concern, and cause for immediate action by the State Highway Commission and all local planning boards.

Costs of Road Oiling

Detailed Data from Work Done in Caddo Parish, Louisiana

IN order that county engineers in different parts of the United States may have an opportunity to study reliable cost data on road oiling, we are reproducing below, through the courtesy of J. T. Bullen, Parish Engineer, Shreveport, La., costs in detail on various road-oiling jobs done under his direction.

Curtis Lane Road

This stretch of road was approximately 0.9 miles in length. The first application was of 250-300 penetration asphalt after one application of cold patch. The 4,800 linear feet of roadway oiled was 16 feet wide, giving a total of 8,533 square yards covered, using 2,000 gallons of the asphalt, or 0.2343 gallons per square yard, at a cost of 4.44 cents per square yard, or $421.88 per mile. The following table gives a recapitulation of the various items in the cost:

Trucks and drivers	$30.70
Oiler and driver	28.50
Sweeper and driver	26.00
Labor for covering	60.96
Heating	20.00
30 yards sand at $1.50	45.00
2,000 gallons asphalt at 7.7c	154.00
Foreman	14.54
	$379.70

Section A of Mansfield Road

In October, 1928, a single application of cold patch was put down on this road for a distance of 1.28 miles. These 6,800 linear feet were covered for a width of 18 feet, totaling 13,600 square yards. A total of 4,900 gallons of cold patch was used, averaging 0.3602 gallons per square yard at a cost of 6.79 cents per square yard, or a total cost of $718.44 per mile. The following table gives a recapitulation of the various items in the costs:

Trucks and drivers	$36.50
Oiler and drivers	86.50
Sweeper and drivers	37.50
Labor for sweeping	61.88
Labor for hauling cover	92.07
4,900 gals. cold patch at 8.8c	431.20
100 yds. sand at $1.60	160.00
Foreman	18.98
	$924.63

Mooringsport Road, Section R

The first application of cold patch on Mooringsport Road, Section R, was for a distance of 7.68 miles. The 40,600 linear feet was covered to a width of 20 feet, giving 90,222 square yards, using 22,900 gallons of cold patch, or 0.2538 gallons per square yard, at a cost of 4.14 cents per square yard, or $487.50 per mile. A recapitulation of the cost is given below:

Trucks and drivers	$149.20
Oiler and driver	340.90
Sweeper and drivers	417.80
Labor for sweeping and cover	726.07
22,900 gal. cold patch at 8.5c	1,946.50
Foreman	163.54
	$3,744.01

This road was oiled with a second application of cold patch for a distance of 9.39 miles. A total of 49,600 linear feet was covered to a width of 20 feet, totaling 110,222 square yards, using 20,800 gallons of cold patch at a rate of 0.1887 gallons per square yard, at a cost of 4.5 cents per square yard, or $528.43 per mile. The following table gives a recapitulation of the itemized costs:

Trucks and drivers	$161.40
Oiler and drivers	551.40
Sweeper and drivers	380.45
Rollers and drivers	223.40
Labor and cover for sweeping	375.27
Labor for hauling cover	282.97
Labor at boiler	29.95
20,800 gal. cold patch	1,830.40
580 yds. sand at $1.73	1,003.40
Foreman	123.32
	$4,961.96

Linwood Avenue Road

Two applications of cold patch were made over a distance of 3½ miles, the first in May and June and the second in September, 1928. A total of 18,600 linear feet of road was covered to a width of 19 feet, or a total of 39,263 square yards, using 21,500 gallons of asphalt or 0.5475 gallons per square yard. The cost was 8.01 cents per square yard, or $899 per mile. On the second application a portion of this job was done with 250 to 300 penetration asphalt. The following table gives a recapitulation of the itemized costs for this work:

Heating	$40.00
Trucks and drivers	96.18
Oiler and drivers	362.75
Sweeper and driver	192.00
Labor for hauling cover	65.51
Labor for sweeping and cover	268.17
16,500 gal. cold patch at 8.8c	1,452.00
5,000 gal. asphalt at 7.7c	385.00
154 yds. sand at $1.60	246.40
Foreman	58.50
	$3,166.51

Greenwood-Mooringsport Road

A 250-300 penetration asphalt was applied to this road for a distance of 3.73 miles. A total of 19,700 linear feet of roadway was covered to a width of 17 feet, or a total of 37,211 square yards, using 8,000 gallons of asphalt, or 0.2149 gallons per square yard. The cost was 4.01 cents per square yard, or $400.43 per mile. The following table gives a recapitulation of the cost by items:

Trucks and drivers	$63.10
Oiler and drivers	141.65
Sweeper and drivers	81.75
Labor for sweeping and cover	104.50
Labor for hauling cover	79.32
Heating	50.00
8,000 gals. 250-300 penetration asphalt	704.00
150 cubic yds. sand at $1.60	240.00
Foreman	29.40
	$1,493.72

Application of Cold Patch and Oil on Various Streets

In September and October, 1928, a total of 20,600 linear feet of roadway on various streets and drives was surfaced to widths of 15 to 60 feet, totaling 44,503 square yards. Two applications of cold patch were applied, using 21,800 gallons on the 44,503 square yards, or 0.4898 gallons per square yard, at a cost of 6.27 cents per square yard. The table below gives a recapitulation of the items making up the cost:

Trucks	$45.70
Oiler and drivers	274.20
Sweeper and driver	244.50
Labor for sweeping and cover	255.54
Foreman	55.70
21,800 gals. cold patch at 8.8c	1,918.40
	$2,794.44

St. Louis Retains Expert for Metropolitan Survey

PROFESSOR THOMAS H. REED of the University of Michigan, who has been consultant to the Pittsburgh Metropolitan Plan Commission, has been retained by a joint committee of the St. Louis Chamber of Commerce and the St. Louis County Chamber of Commerce to direct a survey of the St. Louis metropolitan area and to assist in drafting a plan of unification of this region.

It is presumed that this consolidation will probably be along the same lines as provided by the Allegheny charter, which recently passed the Pennsylvania Legislature. The present consolidation movement grew out of the rejection in 1926 of a scheme of outright consolidation for the municipalities within the county. The 1926 proposal was drafted by a charter commission created under the authority of a special constitutional amendment and composed of an equal number of members inside and outside of the present city of St. Louis. The charter commission developed a deadlock comparatively early in its existence, and the charter finally was submitted only upon the assurance that it would be defeated. This charter provided for no reservations of power to the outlying communities except a differential in the taxation of agricultural lands.

This consolidation movement will be observed with much interest by students of metropolitan government. If the federated plan is adopted, St. Louis will be the second city in the United States to embrace this type of unification.

Creek Valleys—Dumps or Beauty-Spots?

If Toledo and Lucas County, Ohio, could have known forty years ago what they now know, their development would have been quite different. But regional planning was then unthought of.

Some of the benefits and advantages which would have come to many a city and county from deliberate control of their developing destinies, cannot now be realized. Future growth, however, can be controlled, and much can be accomplished by forethought and by careful, broad-gage planning. This decision was arrived at some time ago by the Lucas County Planning Commission, and was acted upon by the engagement of Harland Bartholomew and Associates, of St. Louis, to study the region and to develop a system of major highways and of parkways with the Toledo and the Lucas County of twenty or forty years hence in mind, as well as the city and the county of the nearer future.

Swan Creek Valley is one of the treasures of Lucas County. Within the city its destruction has been almost complete through dumping into the stream, grading the banks, removal of trees and other growth, and similar abuses. Beyond a certain point, however, the valley can still be saved by prompt action.

A great deal of the future correct development depends upon the acquisition of such assets and the desire of the public that they be saved. The handling of even a small bit of this creek valley as the valley of the Bronx River has been handled in New York, would create a strong sentiment for the keeping of Swan Creek for park purposes.

The two lines of action outlined are these: first, that a small section be purchased by county authorities and a publicity and development campaign undertaken; second, that action be taken to protect the public interest in the entire project.

Plans alone will not solve all economic questions, says the recently published Lucas County Planning Commission study (from which the illustrations herewith are reproduced) but experience has shown that with a plan many things will come at no cost that would be prohibitive otherwise.

"It is extremely important," the recommendations continue, "that county officials accept wholly the principle that public parks are a public necessity. The Lucas County Planning Commission is the only agency at present making a survey of park and recreation needs of the Toledo region, and it is a part of the responsibility and duty of the officials to see that these needs are met. The first step only has been taken when a parkway plan is adopted. The plan must now be passed on to the city, county, and state and made 'official' by them within their various jurisdictions."

The part of the study dealing specifically with the parkway system proposes a proper use of a group of areas having limited values for other purposes, including the Maumee River valley, and Swan Creek valley.

The valley of Ten Mile Creek in Lucas County is similar in many respects to that of Swan Creek. Its attractions and values, however, have been appreciated and capitalized by private owners. It is used as a chain linking together sections of the excellent subdivision, Ottawa Hills, and is the dominant feature of Ottawa Park.

It is not now possible to develop a continuous parkway from Ottawa Park to the upper reaches of the stream—as might have been done some time ago. It is possible, however, and is incorporated into the recommendations of the report, that as much as possible of the still available mileage along the stream be taken over and be made into a public reservation of extraordinary merit.

The three views shown herewith are illustrations of a well-planned border road lying along Ten Mile Creek in Ottawa Hills. This is presented as the proper method of handling the subdivision of land along a valley parkway.

The Granville Dam of the Westfield, Mass., Water-Supply

By C. A. FARWELL

Fay, Spofford & Thorndike, Consulting Engineers, Boston, Mass.

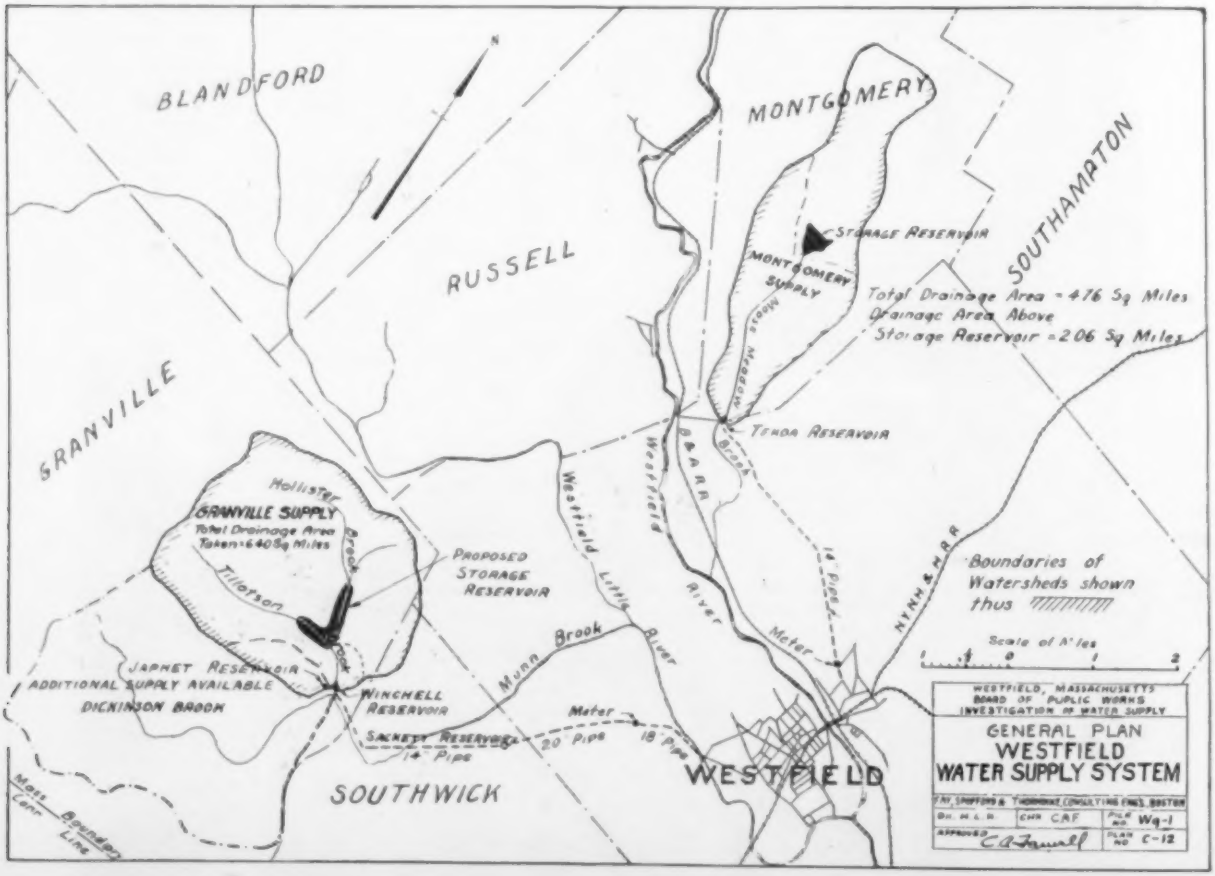
WESTFIELD is situated near the southerly boundary of Massachusetts, about ten miles west of the Connecticut River, in the county of Hampden, and near the larger city of Springfield. The more thickly populated section of the city is in the broad valley lying between the ridge which bounds the westerly side of the Connecticut Valley in this region, and the Berkshires. The Westfield Great River, which the Boston and Albany Railroad follows in climbing the easterly side of the Berkshires and which figures prominently in the headlines of the press during times of flood, flows through the city. Westfield Little River, which joins the Great River at Westfield, furnishes, in its upper portion, the "Little River supply" of the city of Springfield, Mass., where further development is under way at the present time. The Granville supply of the city of Westfield, which is being further developed by the Granville dam, is also in the watershed of the Little River.

The Present Water-Supply

Westfield is fortunate in having a water-supply which is delivered to the city at high pressure and by gravity. The supply is surface water of good quality comparing favorably with the supplies of Springfield, Holyoke, Chicopee and Metropolitan Boston. There are two sources, one about five miles northwesterly of the city in the town of Montgomery, the other about six miles southwesterly in the town of Granville.

The Montgomery supply system, situated on Moose Meadow Brook, has a watershed area of 4.76 square miles, of which 2.06 square miles lie above the storage reservoir and 2.7 square miles between the storage reservoir and the diversion reservoir. The storage reservoir, formed by an earth dam across the brook valley, has an area of 38 acres and a storage capacity, as operated at present, of about 125 million gallons. The spillway is at elevation 865, or about 775 feet above the city. After leaving this reservoir the water flows along the bed of the brook for a distance of 2½ miles to the point of diversion—Tekoa reservoir, 480 feet below the storage reservoir. At Tekoa reservoir, a masonry dam and head works divert the water into a 14-inch supply main leading to the city, a distance of about 4½ miles. This diversion reservoir has an area of 1¼ acres and a storage capacity of about 4 million gallons. Its spillway elevation is 386.2, being about 200 feet above the street level in the business section of the city. This supply system was built in 1874, and is said to have cost about $250,000.

The Montgomery storage reservoir was not stripped of loam at the time of construction and as a result the water drawn from it contains considerable amounts of microscopic growth which at times produce a very noticeable color, taste and odor. These objectionable qualities are, however, practically entirely removed by the aeration the water receives in passing over the steep,



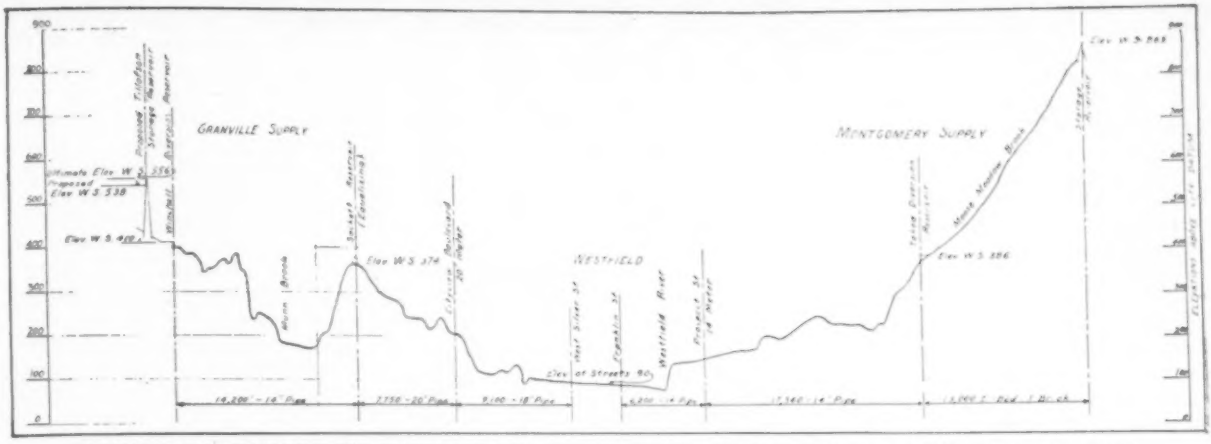


DIAGRAM OF THE WESTFIELD WATER-SUPPLY SYSTEM, SHOWING THE ELEVATIONS OF VARIOUS RESERVOIRS

rocky bed of the brook between the storage and diversion reservoirs. During the past five years this system has supplied water at an average rate of about 1.15 million gallons per day.

Under Acts of 1895, the Massachusetts Legislature authorized the town of Westfield to take any waters within the watershed of Munn Brook in Granville, with certain restrictions. About 1898, a diversion dam was built on Tillotson Brook near the point where Tillotson and Dickinson Brooks unite to form Munns Brook and where the watershed area is 5.99 square miles. Winchells reservoir, which was formed by this diversion dam, has an area of 1¼ acres and a storage capacity of about 3 million gallons. The masonry dam has its spillway at elevation 410. A supply main, 14 inches in diameter, extends 14,200 feet to Sacketts reservoir, which is an equalizing reservoir located on the line to Westfield. Sacketts reservoir has a storage capacity of about 1.7 million gallons. The water surface in Sacketts reservoir when full is at elevation 374, or about 285 feet above the city streets. From here the water flows through a 20-inch pipe 7,750 feet, and an 18-inch pipe 9,100 feet, to the street distribution system.

A few years after the first development, this system was supplemented by the flow of a small brook which naturally entered Tillotson Brook below the diversion dam. The diversion was accomplished by building a small concrete dam on Japhet Brook and a 6-inch pipe line 1,300 feet long to Winchells reservoir, thus adding about 0.4 square miles of watershed area to the supply.

The Granville system, with no storage, has a dry-weather capacity which may average for a month as low as 0.8 million gallons per day and which is, for shorter periods of time, only a fraction of this amount. Prior to the present undertaking, the Granville system had cost the city about $160,000.

Need for Additional Supply Apparent in Dry-Weather Period

The total amount of water available at present from both the Montgomery system and the Granville system may be as low during a dry-weather period as 2 million gallons per day.

The actual consumption for the summer months of the years 1920 to 1926, inclusive, averaged well above 2 million gallons per day, reaching a maximum monthly average of almost 2.7 million gallons per day in August, 1925. In fact, in only one month of this period—July, 1921, when the rainfall was 5.17 inches—did it average less than 2 million gallons per day. From the fire-protection standpoint the situation was gradually getting more serious and the Underwriters had advised that additional supply should be provided. In the last few years a rigorous campaign to economize in the use of water has reduced the consumption somewhat, but even though this economy is permanent, the demand will increase with the growth in population and the gradual increase in use per capita.

The use of meters upon a greater proportion of the services was considered but was not looked upon with favor. It is quite probable, however, that gradually the metering will be extended.

Development of Storage on Tillotson Brook

This branch of Munn's Brook had already been partially developed as described and was without question the proper source to develop for additional supply. A weir was installed for measuring the flow of the brook a short distance above the small diversion dam and at a point which was later selected as the site of the storage dam. Records of flow are available for about ten years, 1908-1918, as shown in the accompanying table. This period included one or more extremely dry years and has been considered the best indication of probable future flow. With sufficient storage, Tillotson Brook can be depended upon to furnish a continuous flow of about 5.5 million gallons per day, as against a variable flow which at times may be as low as ¾-million gallons per day without storage. The city's requirements from this source would not reach the figure of 5.5 million gallons per day for perhaps fifty years, and it was decided to provide storage sufficient to develop a continuous flow of 4 million gallons per day from this source, making, together with the Montgomery supply, the total forecast requirement for 1955.

To provide minimum daily flows of 4 million gallons and 5.5 million gallons from Tillotson Brook requires storage to the extent of 500 million gallons and 1,090 million gallons respectively. These figures are based on the flows from 1908 to 1918, inclusive, and are fixed by the dry periods of 1911 and 1912.

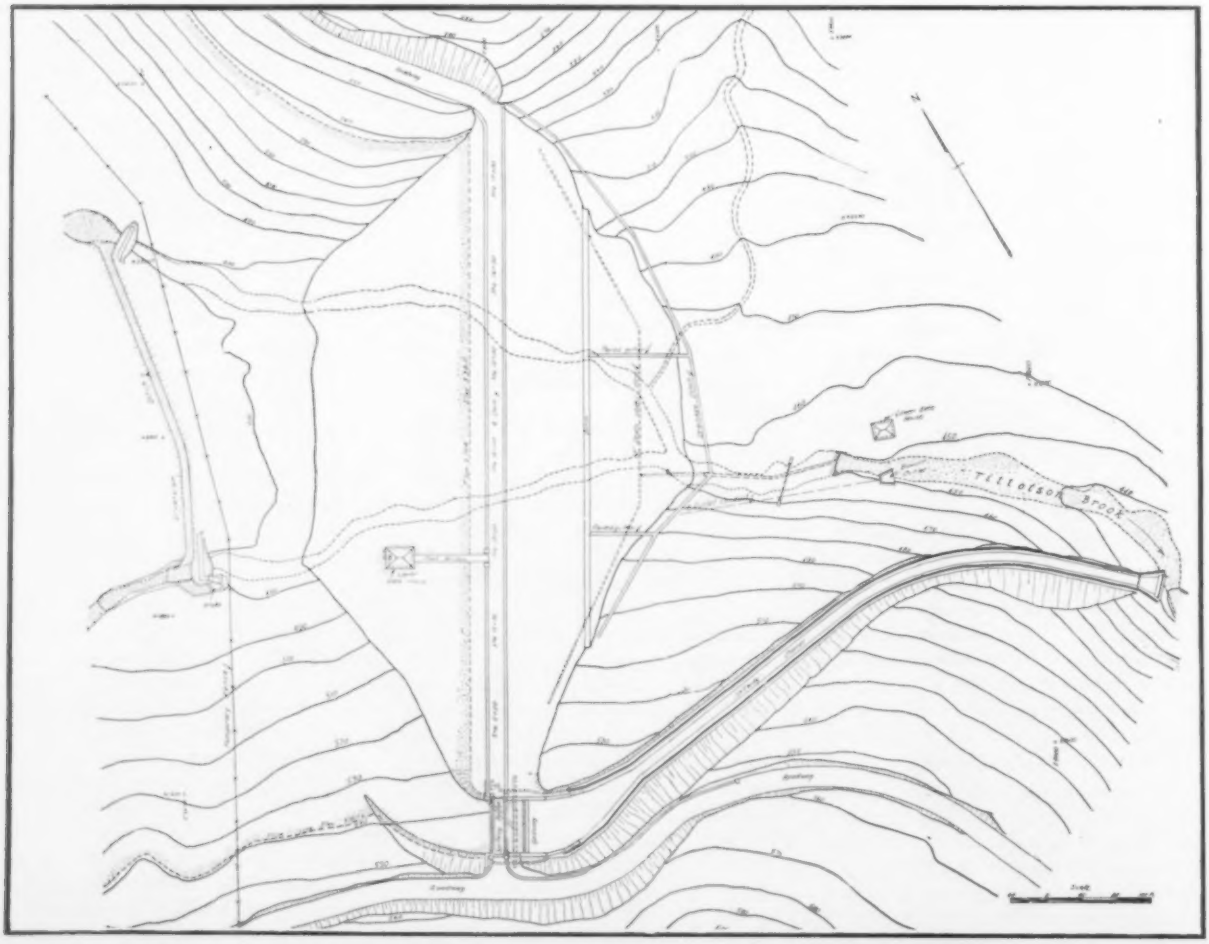
Reservoir Dam to Be Located Upstream from Present Diversion Dam

At a point about 2,000 feet upstream from the existing diversion dam on Tillotson Brook the site for the storage dam was selected. About 1915, when it became apparent to the Westfield Water Department that additional development was necessary, studies of possible sites were made and the present site was decided upon as being the most suitable. Above the site selected for the dam, the brook valley includes two brooks and has a wide floor with reasonably flat slopes, making a good reservoir site. Below the site the valley is narrow and steep-sided and falls rapidly, and a dam farther downstream would need to be much higher to give the same storage. A volume of 500 million gallons is included between elevations 538 and 507, this being the storage required for the draft of 4 million gallons per day forecast for 1955, and a volume of 1,090 million gallons is in-

cluded between elevations 556 and 500, this being the storage required for a complete development of the watershed. The small amount of water stored below 507 or 500 is not taken into account, as it is very small and would be less suitable for use.

The geology of the site of the reservoir and dam is very complicated and has been the subject of careful study. Numerous borings were made and test pits dug over the site of the dam and reservoir. Rock, a mica schist or gneiss, was found in the bed of the valley about 20 feet below the surface. On the left or northerly side the rock extends approximately level beneath the slope, while on the right side it was exposed in a somewhat weathered condition in the lower portion of the slope, but after reaching an elevation of about 30 feet above the valley floor it sloped gradually down to the southwest at increasing depths. Above the rock the material is glacial deposit varying greatly in different portions of the site. In the floor of the valley is an accumulation of boulders buried in a delta deposit. The right slope contains varying layers of fine sand, silty sand, and sand and gravel, which, however, proved upon careful study to be of such character and so situated as to make it possible to secure a cut-off on this side that would insure against dangerous or large amounts of leakage. The left slope was quite different in formation. From the foot of the slope up to and slightly above the top of the proposed dam, the formation consisted of a soft reddish uniform sand; overlaid on the surface, however, by a hardpan blanket. Above the elevation of the top of the dam the hardpan was found to considerable depth. It was in this hardpan above the top of the dam that the borrow-pit was later located. The explorations by means of test pits and borings were made before the location of the dam was accurately fixed and before designs were prepared. Another interesting geological feature and one of importance was the existence of an esker or porous formation of glacial gravel which crosses the reservoir site near its upper end and about 1,200 feet from the dam. This formation leads from the reservoir off to the south and may result in the loss of some water from the reservoir. It is not expected that the amount of water lost through such leakage will be large, but should the leakage prove serious, the reservoir wall at the esker can be blanketed.

It is not expected that there will be any leakage around the left wing of the dam. Around the right wing it is estimated that there may possibly be as much as 200,000 gallons per day, but this is considered to be an outside figure. The amount of leakage which may be expected from the esker area is difficult to estimate and can be controlled as mentioned, if necessary. The seepage through the dam itself, taking into account the material which is being used in its construction, should not exceed 25,000 gallons per day. Careful studies have been made of the material, both underlying and in the vicinity of the site of the dam, and of that proposed for the embankment by Dr. Terzaghi. Numerous tests were made on soil samples from borings and test pits to determine their permeability, as a criterion of the watertightness of the soil either in its natural condition or in embankment, and a standard of permeability was established for use in the field laboratory as a measure of suitability for material to be used in the construction of the embankment of the dam.



GENERAL PLAN OF THE GRANVILLE DAM OF THE WESTFIELD, MASS., WATER-SUPPLY

Construction

The new construction provides a reservoir with a storage capacity sufficient to furnish 4 million gallons of water per day, the forecast requirement from this source of supply in 1955. Provisions are made, however, for raising the dam and the reservoir level in the future an additional height of 18 feet, thereby providing for sufficient storage to completely develop the watershed.

The dam itself is of earth with a maximum height at the center of about 80 feet, a 3 to 1 slope on the upstream side, and 2 to 1 and 2½ to 1 slopes on the downstream side. The downstream toe is provided with a stone embankment, and the upstream side with a stone facing. It will be noted that the upper of the two stone walls built on the crest of the dam will in reality be a continuation of the stone facing and will act to increase the nominal free-board of 10 feet. The earth available for the embankment was such that a core wall was not needed, the earth itself being sufficiently impermeable. The original plans called for a rather simple cut-off or key across the joint between the embankment and the underlying material to prevent seepage along this surface. However, construction operations disclosed the possibility of an undesirable amount of seepage through the material overlying the rock and also showed that the rock was traversed by seams to an extent not previously anticipated. In consequence, the cut-off now provided across the floor of the valley extends down from the surface to and into the rock, by means of grouting, and upward from the natural surface about 10 feet, with lesser construction on the slopes.

Beneath the stone toe at the downstream side of the dam, drains are provided to collect seepage water and to carry it to a central point where it can be observed and measured by means of a weir. All natural surface material, and in some instances a layer of porous material, was removed from the site of the embankment. Material for the embankment is in general being brought from the borrow-pit located in the hardpan deposit on the left slope. This location was chosen as a result of the information disclosed by the test pits and to enable the material to be brought by down-hill haul to the dam.

The outlet conduit is located in the rock near the bottom of the right slope. It consists of a 42-inch reinforced concrete pipe and a 24-inch cast iron pipe embedded in concrete, the two pipes being combined into one concrete structure. Particular care was taken to insure that there be no leakage along the outside of the structure, and concrete collars were provided on all sides at short intervals.

The 42-inch pipe serves to carry the brook flow during construction, and later, during operation, to drain the reservoir or to blow off the sediment in the bottom. The 24-inch pipe is available during construction to assist in carrying floods or to pass water to the supply main if found desirable and later, during operation, it will be used as the service outlet pipe carrying water from the upper gate-house to the supply main. In their use as brook conduits during construction these two pipes together have a capacity, with a few feet of head at the upper end, of about 300 cubic feet per second, or 50 cubic feet per second per square mile of watershed, which will care for anything but an extreme flood. The profile of the conduit was so fixed that it will, under conditions of large flow, be below the hydraulic grade line, and its outlet is also kept well down in the bed of the brook in order that as much as possible of the velocity head will be regained. The entrance structure is located practically in the bed of one of the two brooks, the other brook being brought to it through a diversion ditch.

The flow through the outlet pipes is controlled at the upper gate-house. Water may be taken into the gate-house from the reservoir at one or more of four elevations, permitting it to be taken from near the surface or from levels below the surface, as desired. On the outside of the gate-house tower, provision is made for coarse screen racks through which the water must pass to reach the inlet pipes. Stop planks may also be placed at this location, in emergency, for repairs to inlet valves. From the chamber into which these inlet pipes lead, the water passes through screens into a second chamber, from which it is drawn off through either a 24-inch or a 12-inch valve to the 24-inch outlet pipe. This is the point at which the draft from the reservoir will be controlled and the valves may be arranged to permit either automatic or distant control if such should appear to be desirable in operation. The valves shutting off the 24-inch outlet pipe above the gate-house and those on the 42-inch blow-off pipe are also located in this gate-house, both being in duplicate. All valve stems are brought up to the floor of the gate-house, where they are operated by valve stands, geared as necessary.

A hand-operated overhead bridge crane is provided for handling all screen racks, valves, etc. The screen guides are of brass to insure ease of handling of screens. It is planned to use screens only in the bottom 10 feet of the guides, the screen rack being designed to close the opening, except through the screen. If, however, this scheme should prove in operation not to be a success, racks can be used for the entire height up to water-level, as is customarily done. The floor of the gate-house is at two levels, there being a low section around the screen guides where the screens may be washed. For safety, all long ladders are enclosed.

The gate-house floor is reached from the crest of the dam by means of a footbridge with trusses of minimum weight to permit of easy raising to a higher level when the dam and gate-house are raised to the height required for final development.

On the downstream side of the dam, the 24-inch outlet pipe leads to a lower gate-house where the water may pass, under proper control, either to the pipe line leading to Winchells reservoir and a connection with the main to the city, or to a discharge into the brook bed. Provision is also made for connection to an aerator if one is found desirable in the future. A venturi or other meter may also be installed here, if provided.

Spillway

The spillway is located at the southerly end of the dam on the right bank. It is set well into the natural hill, and substantial cut-offs are provided to prevent seepage. The crest length of 60 feet gives the spillway weir a capacity, with 4 feet flowing over the crest, of about 2,000 cubic feet per second, or 330 cubic feet per second per square mile of watershed. The above depth on the crest would still leave a free-board of 6 feet, and this could be reduced without danger, but with the large reservoir to absorb the peak flow of a flood, the spillway has a large factor of hydraulic safety. The crest of the spillway was designed as a base for a future Ogee dam, which will be built to a further height of 18 feet when the dam is raised. The spillway is crossed by a bridge with a 12-foot clear roadway carried on half-through trusses, these being made as light as possible to permit of raising the bridge to the ultimate height. From the spillway crest the channel follows a grade contour to the brook bed at a point well below the downstream side of the dam. The 60-foot width at the crest decreases in about 175 feet to a width of 10 feet on the bottom. The typical cross-section, having a 10-foot bottom width and ¾ to 1 side slopes, is used throughout the remainder of the channel, the depths varying from 8 feet to 5 feet, depending on the slope. At the lower end is a structure which will serve to break up the flow during heavy discharge. Numerous weep-holes are provided in the sides and bottom of this channel to prevent lifting of the

lining from hydrostatic pressure, and concrete collars are provided at short intervals to insure that water will not find a channel behind the lining.

Stripping in Reservoir

The flow line of the reservoir is to be "stripped" of loam through a vertical distance of 12 feet and is to be "grubbed" of all vegetable matter to a further depth of 18 feet, measured vertically. In addition, certain swampy areas are to be "blanketed" with sand or gravel.

It has been necessary to use water from this source during construction, and great care has been taken to keep it safe from contamination. Not only are the contractor's forces under strict sanitary regulation, but the water is chlorinated.

Roads were laid out to connect with each end of the dam, that on the southerly end being part of a circuit which will enable visitors to obtain a good view of the dam and reservoir. The road across the dam and that along the northerly side will, for the present at least, be service roads only.

Contract and Specifications

In preparing the contract, the work was divided into a number of items, upon most of which unit price bids were received. In addition, another item, "Establishment and Dismantling Expense," was included, to enable a bidder to cover costs of a general nature under this overhead item, allowing the unit prices to closely represent the costs on those units. With this provision, a variation in estimated quantities in the particular units of work should not result in unfairness to either party.

Separate items were provided for excavation and embankment to permit of better control over the material used in the dam. This means, of course, that material used is paid for under both of two items. The furnishing of pipe and valves was not included in the construction contract, but they were purchased by the city under other contracts.

Cost

The total expenditure for the work is estimated at $630,000, of which about $525,000 is the contract work described, including some additional work not originally included in the contract.

Organization

The work is being done for the city of Westfield, of which Louis L. Keefe is Mayor, and is under the direct charge of the Board of Public Works, consisting of John O. McKean, Chairman, John L. Barry and Edward H. Hinsman; Oren E. Parks, who is Superintendent and Engineer for the Board, had an active part in the design and is in general charge of construction for the Board, had an active part in the design and is in general charge of construction for the Board; the C. & R. Construction Co., of Boston, are the contractors on the work. Fay, Spofford and Thorndike are serving as consulting engineers, E. B. Myott being resident engineer at the site during construction. Dr. Charles Terzaghi has served as consultant on geology and soil mechanics.

Trucks Dominate Street Cleaning in San Francisco

Complete Motorization Has Increased Efficiency and Effected Economy

THE Division of Street Cleaning of the Department of Public Works of San Francisco, Calif., is now completely motorized, greatly increasing the efficiency of the department. The horse-drawn drop-bottom wagons formerly used had a capacity for handling 4 to 6 yards of refuse per day, but the 28 trucks now in use have a capacity of 15 to 20 yards each. Each one of the trucks now used has been equipped with a 5-yard metal body with a special sanitary top by Peter J. Owen, Superintendent of the Street Cleaning Department.

Two Systems Employed

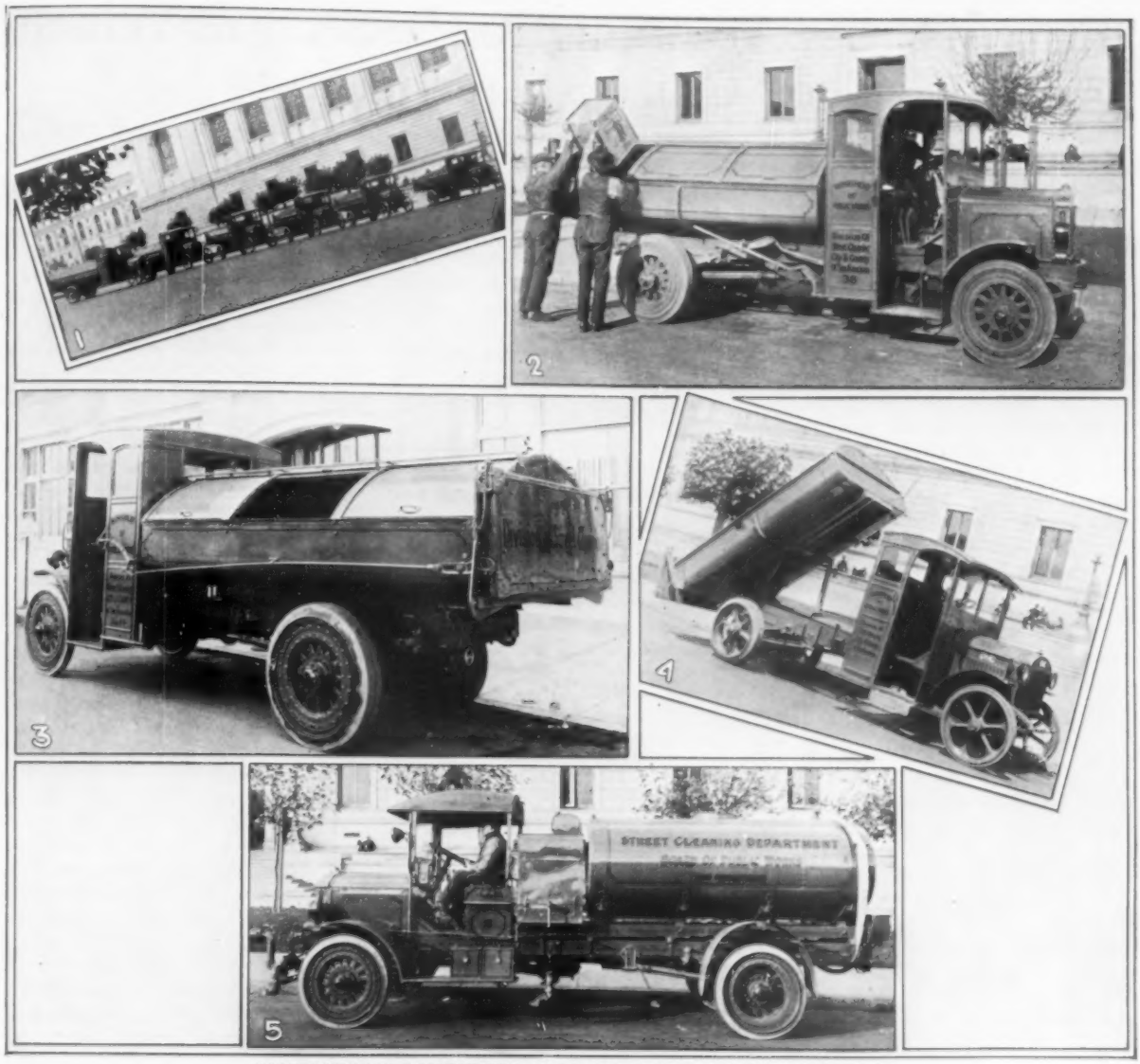
Two systems of street cleaning are used in San Francisco—the block system and the gang system. Four trucks are employed in the block system, which is used in the downtown section, and 24 trucks are used in the gang system in the residential section. In the block system district square metal cans are used, in which the street sweepers place the refuse and street sweepings. Two or three of these metal cans are placed at each block in the downtown section. The truck crew operating in the block district consists of the truck driver and two men who pick up the cans and empty them into the truck body and then place the empty cans back on the sidewalk, ready for receiving refuse swept up by the street sweepers. As many as 500 of these cans are handled by the four trucks daily.

In the sections of the city in which the gang system is used, each truck is accompanied by two men who shovel the piles of street sweepings directly from the street into the truck body. Each truck is equipped with special racks for carrying the scoop shovels and the long-handled shovels used by the men accompanying each truck. A special compartment in the cab carries the raincoats and hats of the men. The steps of the cab are made especially low, permitting the men to get on and off the cab easily and safely while the truck is moving slowly. Thus, it is not necessary to stop the truck each time the men step off, this feature saving a great deal of time. From 15 to 20 yards are handled each day by each of the trucks. In the Sunset District, however, from 25 to 50 yards are handled daily by each truck. The material picked up consists mostly of sand which is blown over the streets, as the Sunset District is located among the sand dunes.

Each of the 28 trucks used in the Street Cleaning Department is equipped with a Wood-Detroit hydraulic metal body and hoist and tail-gate, the release of which is controlled by the truck driver without leaving his seat, by means of a lever at the side of the cab. When the load of refuse is to be dumped, the driver releases the tail-gate and elevates the body until the contents are dumped. The trucks are stored in a special garage maintained by the city and repaired in the shop of the Department of Public Works.

Special Covers for Trucks

The special top with which each truck is equipped has entirely eliminated the unsightly appearance of refuse picked up from the street and keeps the dirt and papers from blowing off the truck into the street. On each side of the special tops are three sliding doors built in the form of a semi-circle. When the street refuse is to be shoveled into the body or when one of the metal containers is to be emptied into the truck, one of the doors is opened by sliding the door to one side or the other. After the refuse has been loaded into the body, the door is closed, thus always keeping the refuse under cover and out of sight. At each end of the special cover is a hook used for raising the entire cover when it is to be removed from the body and the truck used for



SAN FRANCISCO'S MOTORIZED FLEET OF STREET-CLEANING EQUIPMENT

1. A line-up of some of the 25 pick-up trucks equipped with special tops. 2. Emptying a can of street sweepings into the pick-up truck. 3. Close-up of the truck with one door open. 4. Dumping the body. 5. One of the motor flushers

hauling sand or material other than refuse. The truck bodies are kept clean by washing them down each night with a stream of water from a hose.

Motor Flushers

The Street Cleaning Department is now operating three specially constructed street flushers equipped with a 1,200-gallon water-tank and an independent motor-driven Aurora pump. Each outfit washes from 50 to 60 blocks on an 8-hour shift. The sprinklers are operated in two shifts, the crew for each outfit consisting of the driver and the operator.

A system of special levers controlling the pressure valve is arranged at the right side of the can within easy reach of the operator, who sits at the right side of the cab. The pump distributes the water through the flusher end at a pressure of about 50 pounds. The water is forced through two flusher ends simultaneously washing the dirt from the street into the gutter. The flusher is followed by sweepers who place the dirt in piles, which are later picked up by street-cleaning trucks and hauled away.

The oblong-shaped tanks can be filled in five minutes through a hose connection at the top of the tank at the rear. The pump and independent engine are mounted between the front of the tank and the rear of the cab. The tank is carried on four metal cradles by heavy metal straps. The metal cradles are riveted onto a sub-frame, which in turn is attached to the chassis.

For washing down fountains and safety stations and for extinguishing fires, each truck carries a 25-foot reel of hose which is connected with the pump in such a manner that a large stream of water can be thrown a considerable distance.

Playgrounds in the Old and the New Jerusalem

THERE is a playground, furnished with up-to-the-moment American equipment and in charge of a trained director, under the wall of the old city of Jerusalem just within Zion Gate. Here, today, 600 boys and girls of many races, religions and classes, are learning to play together. Another playground is planned for the new Jerusalem outside the walls, and another for the all-Jewish city of Tel Aviv, founded in 1910. Mrs. Bertha Guggenheimer was responsible for the introduction of the modern American idea of playgrounds into that historic land. She died soon after the opening of the first one, leaving $100,000 to be used for its maintenance and that of others established.

Rating Cities According to the Services Which Their Citizens Are Getting

By MABEL L. WALKER

WITHIN the last few years the prevailing desire for measurement and standardization has extended to city government. Recent municipal literature seethes with efforts, suggestions and attempts in the direction of rating municipalities. Many of these endeavors relate only to particular functions, others to a general summary of municipal activity. In so far as these systems have been carried out, however, they have been applied to only a limited number of cities. There has apparently been no attempt to grade all the cities of the country from the standpoint of general municipal efficiency.

In a study of budget distribution which the writer is undertaking, it was found necessary to isolate a group of the more progressive cities for intensive study. The problem of selection immediately arose. How could any such group of cities be determined upon without the taint of arbitrariness in the selection? If arbitrarily selected, the choice could be criticised as an attempt to prove predetermined conclusions. In order to proceed with the study, it thus became necessary to devise some purely objective test of excellence in a city government.

Measuring Results Rather Than Methods or Costs

Probably no perfect system of grading anything which is affected by intangible factors has ever been devised. Certainly, no extravagant claims are made for the one followed in this experiment. The I. Q. is useful, although not infallible; most teachers find "marks" indispensable, although we all recognize their limitations. In the same manner, students and civic officials, while conscious of its imperfections, may find the following index of use until some more satisfactory measure of service can be worked out. The principle of ordinary school grading has been followed here and no recognition taken of the fact that in some cases greater natural difficulties have to be overcome than in others. This is an index to show achievement and not effort expended. Any other procedure would involve one in a labyrinth of difficulties.

It is obviously impossible at the present status of statistical record-keeping to subject all functions of a city government to quantitative measurement. Probably, many functions will never be susceptible to such measurement. But it is entirely reasonable to suppose that a carefully selected list of key functions could be found which would serve as an index to general municipal efficiency and progress. These functions must be such as are generally accepted as municipal responsibilities; they must be capable of quantitative measurement; and statistics for them must be available in terms of *results* rather than methods or costs.

The latter requirement probably demands some explanation, as in the majority of other rating systems methods or costs, or both, are included in conjunction with results. Both are of course highly important, but they should be given separate consideration and not confused with the main issue. The first and fundamental question to be answered in considering a city's efficiency is, "What service are the citizens getting?" A city government exists to give service, and the citizens have a right to demand it in terms of ultimate results. The next, and extremely vital, consideration is the cost involved in rendering this service. How can a city be criticised on its cost of service until we know what type of service it is rendering? To give a city a high rating because it spends much or little on its schools, for example, is to wholly ignore the questions of efficiency and economy. If the expenses of the various city services can ever be reduced to an accurate cost system of measurement, comparison along these lines will be most enlightening from the standpoint of governmental economy. But even under such hypothetical circumstances, such a measure would not indicate that the citizens of the leading community were getting the best educational service, for example, but only that they were getting the most for the money expended on that service. This would be gratifying, of course, but it might be far from adequate.

But much progress must be made in cost accounting before we can rely upon such a method for general governmental rating. Meanwhile, if we are attempting to get a selected list of cities in order to study their budget distribution, we should certainly cloud the issue by introducing costs in any form in the rating system. We might conceivably start out by deciding that a city should spend approximately 40 per cent of its budget on schools. Grading the cities upon this assumption, we should be led in a circle back to the amazing conclusion that the best cities spend 40 per cent of the budget on schools.

Methods Are Not a Conclusive Measure of Efficiency

A comparison of methods should never be used as a measure of efficiency. Once relative efficiency has been ascertained by objective means, a comparison of methods would be valuable as a means of determining the methods by which the most service at the least cost may be obtained. A clean city and a low tax rate are desirable in themselves, but a city manager or mayor form of government is not a good per se, but only because it represents the best means of achieving other ends.

A further preliminary assumption was that municipal functions were roughly divisible into three main types —protective, welfare, and public works. General and administrative functions may be ignored here, as they occupy an intermediate and not a final role. In

Substituting Measurement for Guesswork

"All sciences are characterized by a close approach to exact measurement. How many of them could have made much progress without units of measurement generally understood and accepted, it is difficult to imagine. In order to determine the pressure of steam, we do not take a popular vote: we consult a gage. Concerning a patient's temperature, we do not ask for anybody's opinion: we read a thermometer. In economics, however, as in education, though the need for quantitative measurement is as great as in physics or in medicine, we have been guided in the past largely by opinions and guesses. In the future, we must substitute measurement for guesswork."*

* Irving Fisher. "The Making of Index Numbers," p. i.

other words, the administrative functions are not ends in themselves, but simply represent a means for carrying out other primary functions. It was decided to select the functions to be rated so that they would be rather evenly distributed between these three major groups in order that an all-round picture of the city service might be secured. With these assumptions in mind, the following functions were selected for preliminary investigation: police, fire protection, health, sanitation, highways, lighting system, water-works, schools, libraries, parks, charities, and hospitals. Recent publications of various types on municipal government were thoroughly combed for suggestions as to the best index questions for each particular function. Information secured in this way was supplemented by extensive correspondence and numerous interviews with authorities on various questions involved. The questions finally selected are thus not the opinion of a single individual, but, it is hoped, represent the synthesis of some of the best current thought on the subject.

Aside from the impossibility of collecting first-hand all of the necessary data, it was thought more desirable to use figures that had been compiled by authoritative investigators in each particular field. The collection of original statistical data necessitates familiarity with the field of investigation. When a number of such diverse fields were to be investigated, it was preferable that the preliminary compilation of statistics should be made by those investigators most familiar with the subject.

As a result of these two parallel investigations, several of the functions originally selected had to be dropped from the list. Street lighting, water-works, charities and hospitals were the first to be eliminated.

Comparable Police Data Not Obtainable

A long and arduous struggle was undergone in the endeavor to secure comparable police data. It was felt that the omission of this function would constitute a decided defect in any index of governmental service. When careful investigation failed to reveal any compilation of worth-while statistics, police reports were requested from every city of 30,000 or over in the country. With the exception of some half-dozen cities, these failed to give any indication of police efficiency in handling the crime situation. Letters requesting such information were then sent to more than forty crime commissions. One after another reiterated the statement that while the ratio of arrests to felonies probably constitutes the best single index of police efficiency, comparable statistics on crimes committed simply do not exist. So far as I can discover, the following cities are the only ones making any effort to keep a record of crime statistics: Baltimore, Berkeley, Cleveland, Detroit, Los Angeles, Pontiac, and Rochester. Even for these few, the statistics available are not comparable. The classification of felonies differs from state to state, and an arrest means one thing in Baltimore, another in Cleveland, and something else again in Chicago. This dearth of crime statistics is a sad reflection on municipal efficiency, and many criminal authorities see a direct connection between it and the deplorable crime conditions in the United States.

Fifteen Functions and Sources of Statistics

The following table shows the list of fifteen questions selected, with the sources of the data and the years covered by them. The latest possible comparable data were secured for each function:

Function	Source of Statistics	Years Covered
Public Works:		
Street cleaning. Number times per week	Municipal Index 1927	1926
Garbage collection. Number times per week	Municipal Index 1926	1925
Percentage population sewered	Municipal Index 1927	1926
Highways. Percentage of total that are paved	Municipal Index 1928	1927
Highways. Percentage of paving that is durable	Municipal Index 1926	1925
Protective:		
Police. Ratio of arrest to felonies committed	None	
Fire protection. Ratio of fire loss to total real property (estimated true valuation)	Fire Prevention Year Book, pub. by Baltimore Underwriter and National Agent ... U. S. Financial Statistics of Cities	Average for three years 1925-27
Health. Death-rate per 1,000 pop. Adjusted for age and sex distribution	U. S. Bureau of the Census. Mortality Statistics, 1923	Average for four years 1920-23
Health. Communicable diseases per 1,000 population	U. S. Public Health Service. Public Health Reports	Average for three years 1925-27
Health. Infant mortality per 1,000 births exclusive of stillbirths	American Child Health Assn. Statistical Report of Infant Mortality for 1927	Average for five years 1923-27
Welfare:		
Schools. Length of term	U. S. Bureau of Education. Biennial Survey of Education	1924-26
Schools. Proportion of total enrollment in high school	U. S. Bureau of Education. Biennial Survey of Education	1924-26
Schools. Average daily attendance	U. S. Bureau of Education. Biennial Survey of Education	1924-26
Libraries. Circulation per capita	Library Journal	1924-25
Parks. Average population per acre of parks and playgrounds	U. S. Department of Labor. Park Recreation Areas in U. S.	1925-26

Disappointing Data on Communicable Diseases

The results of compiling the data on communicable diseases proved to be very disappointing. After the total number of cases per thousand population of the twelve most prevalent notifiable diseases had been carefully ascertained for each city, an average taken for the three years included, and the cities graded accordingly, the amazing result was apparent that the cities with the highest general and infant mortality rates had the smallest number of diseases, and conversely the cities with the lowest mortality rates had the most cases of sickness. The defect in the data was too glaring to be ignored. A death is an inescapable fact, but how be sure that the records of influenza are complete? The recording of diseases and the recording of crimes have much in common, which may account for the fact that they represent the two most conspicuous lacks in comparative municipal data. In both cases too much depends upon the vigilance of the civic official, backed up by the general alertness of the community, in seeking a complete record of facts. It puts a rather severe strain upon the functionary to realize that his department will appear at a disadvantage in comparison with those of other cities, largely in proportion to his zeal in ascertaining and recording facts. "These facts are generally concealed by most police departments," said the member of one crime commission in answering the request for crime statistics.

School Attendance and Enrollment

The next important question to be eliminated was that relating to school attendance. After the figures had been compiled and the cities graded accordingly, it was discovered upon investigation that methods of recording school attendance vary from state to state and even among cities of the same state. Legal methods are being sought to correct this situation, but at present the data are unreliable.

The question relating to the ratio of high school pupils to the total enrollment was retained, but only those cities having a like number of pre-high school years of instruction were graded on this question.

Method of Weighting Used

The elimination of the above questions left a sad discrepancy between the three groups of functions, and it was for this reason that the weighting system was introduced. The theory of weighting followed should be explained. In any comparison of varied city activities, weighting should be resorted to very

cautiously, as it is obviously impossible to gage the relative merits of widely different functions, and any decision in this respect is apt to be purely arbitrary. When necessary, however, to preserve a proper balance between the various *types* of functions, it should be legitimate to give some extra weight to those functions which are generally recognized as of prime importance. It should be clearly kept in mind, however, that this is **done, not with** any idea of equalizing the rating between individual functions, which would be an impossible task, but simply to preserve a rough balance between the types of functions. This consideration is the more important when it is borne in mind that some results are not attributable to one function alone, but reflect many. Mortality rates, for example, may, to some extent, be affected by every function included in the index. Library circulation may be a better index of the educational status of the community than the number of days in the school term.

The following questions with weights indicated were the final selection. A slight emphasis is given to protection as representing the most fundamental type of function.

Question	Weight
Public Works:	
Street cleaning. Number times per week	1
Garbage collection. Number times per week	1
Sewerage. Proportion population sewered.	1
Highways. Proportion of total paved	1
Highways. Proportion of paving that is durable	1
Protection:	
Fire. Ratio of fire loss to total real property	2
Health. Adjusted death-rate	2
Health. Infant mortality	2
Welfare:	
Schools. Length of term	1
Schools. Ratio of high school pupils to total enrollments	2
Libraries. Circulation per capita	1
Parks. Number people per acre of parks and playgrounds	1

The city with the best record on any function was given 100 on that question*; the one with the worst record 50*; it being assumed that as all of these services were performed to some extent by all of the cities, and as the first increment of service was the most valuable to the citizen, it would be fairer to rate the lowest city at 50 rather than at zero. The other cities were rated proportionately. An average was taken of each city's rating on all functions, and this represented that city's final rating. No city was included in the final rating unless statistics were available on at least eight of the twelve questions, and on not less than two from each group. Of the 250 cities included in the study, only 159 were eligible for the final rating. All cities with a population of 30,000 or over were originally included.

*Exceptions were made in the case of functions with a few widely scattered extremes at each end of the scale, as otherwise the bulk of the cities would have been included within a very narrow range of points.

Rank	Name of City	Street Cleaning	Garbage Collection	Sewerage	Total Paving	Durable Paving	*Fire Loss	*Death-Rate	*Infant Mortality	School Term	*High School Enrollment	Library Circulation	Parks	Rating
	CALIFORNIA													
3	Berkeley	75.00	79.16	100.00	96.64	64.33	94.30	.....	94.60	76.66	81.77	98.32	82.20	86.68
14	Long Beach	.....	83.33	55.55	63.32	100.00	99.80	.....	94.20	65.00	79.27	89.60	100.00	84.87
29	Los Angeles	79.16	79.16	.....	66.79	.....	97.00	84.00	83.90	78.33	79.67	72.49	99.10	83.15
16	Oakland	100.00	58.33	.....	.....	.....	90.00	97.00	87.30	76.66	77.39	65.05	93.20	84.35
40	Sacramento	83.33	81.25	100.00	89.44	89.33	75.60	.....	84.50	70.00	77.70	63.99	100.00	82.34
15	San Diego	.....	.....	.....	65.26	100.00	87.50	.....	89.50	80.00	71.80	88.88	100.00	84.70
6	San Francisco	.....	89.58	.....	83.56	96.83	.....	82.50	90.10	86.66	82.93	63.49	95.00	85.51
13	Stockton	.....	79.16	.....	87.35	97.28	92.00	.....	84.60	70.00	.....	66.77	95.75	84.95
	COLORADO													
85	Colorado Springs	.....	83.33	88.85	52.70	51.79	97.90	.....	78.25	68.33	80.53	67.99	100.00	78.95
99	Denver	83.33	81.25	83.30	55.70	79.90	88.00	75.00	74.50	70.00	69.80	71.88	100.00	77.49
146	Pueblo	79.16	85.41	.....	54.64	.....	78.40	.....	58.25	61.66	.....	62.16	98.00	71.43
	CONNECTICUT													
10	Bridgeport	.....	66.66	83.30	71.80	94.10	98.20	89.50	86.40	71.66	.....	82.49	89.80	85.23
42	Hartford	100.00	83.33	100.00	89.73	50.09	95.00	78.00	81.00	65.00	76.65	64.16	99.85	82.09
122	New Britain	.....	56.24	66.65	52.49	100.00	90.60	.....	75.70	75.00	62.89	65.88	96.00	74.66
43	New Haven	.....	70.83	83.30	78.16	100.00	78.10	86.00	85.00	76.66	77.96	67.77	99.90	82.04
	DELAWARE													
17	Wilmington	.....	81.25	94.40	80.93	92.54	92.10	86.00	73.60	76.66	.....	71.60	95.65	84.34
	DISTRICT OF COLUMBIA													
39	Washington	100.00	93.75	.....	.....	.....	93.30	77.00	76.20	68.33	79.75	58.43	98.60	82.43
	FLORIDA													
136	Jacksonville	89.58	100.00	.....	63.94	.....	70.20	.....	75.70	66.66	60.59	56.16	93.10	73.53
86	Miami	87.50	.....	.....	76.87	80.59	93.00	.....	69.90	50.00	77.01	.....	93.60	78.94
150	Tampa	50.00	.....	.....	72.37	.....	69.60	.....	80.70	66.66	62.94	58.21	100.00	70.33
	GEORGIA													
116	Savannah	.....	87.50	83.30	73.08	100.00	88.80	.....	60.70	66.66	61.80	65.72	82.05	75.45
	ILLINOIS													
68	Chicago	85.41	.....	94.40	86.13	82.16	72.00	87.50	80.10	86.66	74.70	64.60	74.90	80.19
149	East St. Louis	.....	.....	72.20	68.93	98.78	50.00	.....	66.80	90.00	62.85	55.55	100.00	70.39
1	Oak Park	78.12	66.66	100.00	99.75	84.90	97.80	.....	100.00	75.00	.....	77.60	76.55	87.84
139	Peoria	.....	62.50	.....	68.06	.....	50.00	.....	78.00	73.33	84.65	72.49	100.00	72.88
114	Quincy	.....	58.33	88.85	.....	.....	62.40	.....	81.10	78.33	76.70	65.55	99.60	75.55
37	Rockford	83.33	66.66	.....	85.63	68.46	89.10	.....	85.10	85.00	83.32	69.71	99.35	82.55
	INDIANA													
147	East Chicago	77.08	.....	97.73	.....	.....	71.40	.....	59.60	78.33	58.40	65.72	87.25	71.35
18	Fort Wayne	77.08	81.25	88.85	81.86	.....	84.80	.....	87.80	81.66	.....	74.10	97.40	84.30
49	Indianapolis	.....	81.25	.....	82.15	86.28	85.40	81.50	79.80	63.33	.....	73.10	98.90	81.53
83	Muncie	.....	77.08	.....	80.77	.....	65.30	.....	80.20	66.66	91.76	74.44	96.70	79.10
78	South Bend	62.49	.....	77.75	76.11	98.71	77.10	.....	84.30	100.00	64.75	66.38	98.05	79.36
41	Terre Haute	.....	.....	77.75	73.48	.....	82.50	.....	78.80	76.66	84.84	84.77	98.75	82.15
	IOWA													
94	Cedar Rapids	77.08	57.28	.....	66.83	99.80	65.10	.....	89.50	78.33	83.46	82.49	.....	78.16
7	Davenport	.....	68.75	88.85	82.46	100.00	75.00	.....	86.60	86.66	80.48	100.00	100.00	85.45
56	Des Moines	.....	66.66	.....	75.97	.....	85.40	.....	86.10	65.00	80.79	79.43	99.30	80.99
96	Sioux City	.....	83.33	.....	62.38	100.00	73.60	.....	80.70	66.66	73.51	69.54	100.00	78.12
34	Waterloo	.....	79.16	.....	68.43	100.00	71.30	.....	85.50	75.00	84.48	87.88	100.00	82.75
	KANSAS													
133	Kansas City	.....	81.25	.....	81.81	98.82	61.70	80.00	73.20	53.33	71.61	56.60	89.10	73.85
77	Topeka	.....	83.33	72.20	85.88	100.00	83.20	.....	83.40	50.00	76.63	58.10	96.55	79.42
69	Wichita	79.16	.....	97.73	.....	.....	81.50	.....	83.40	60.00	74.58	67.54	98.05	80.13
	KENTUCKY													
153	Lexington	.....	81.25	88.85	.....	.....	65.80	.....	70.80	63.33	65.89	50.99	74.35	69.43
134	Louisville	79.16	87.50	50.00	.....	.....	71.00	77.00	76.80	51.66	.....	67.21	97.90	73.58
	LOUISIANA													
132	New Orleans	85.41	100.00	91.07	60.56	88.92	68.80	59.50	70.60	63.33	.....	53.61	94.75	73.96
151	Shreveport	.....	83.33	77.75	68.12	.....	61.60	.....	73.20	50.00	.....	51.83	100.00	70.06
	MAINE													
119	Portland	74.99	66.66	72.20	69.24	75.76	70.20	.....	80.10	66.66	.....	80.88	97.05	75.33
	MARYLAND													
74	Baltimore	83.33	85.41	88.85	90.09	96.65	88.10	77.00	75.20	83.33	62.04	51.44	92.25	79.75

* Double weighting.

Rank	Name of City	Street Cleaning	Garbage Collection	Sewerage	Total Paving	Durable Paving	*Fire Loss	*Death-Rate	*Infant Mortality	School Term	*High School Enrollment	Library Circulation	Parks	Rating
	MASSACHUSETTS													
65	Boston	.....	81.25	100.00	100.00	73.78	76.90	77.50	76.90	66.66	.....	68.88	90.80	80.30
110	Brockton	.....	79.16	88.85	68.79	57.82	78.80	.....	90.10	68.33	.....	66.66	70.80	76.20
120	Cambridge	62.49	85.41	100.00	.....	.....	71.60	85.00	86.20	55.00	.....	64.16	50.00	75.13
155	Everett	.....	70.83	.....	80.82	52.77	52.70	.....	84.90	58.33	82.96	72.77	54.60	69.27
141	Fall River	62.49	70.83	.....	67.40	100.00	75.10	75.50	72.80	61.66	70.89	65.55	61.90	71.89
66	Fitchburg	.....	83.33	88.85	61.25	100.00	79.10	.....	81.20	70.00	82.24	57.71	98.80	80.23
128	Haverhill	.....	.....	83.30	63.67	90.68	50.00	.....	85.10	68.33	.....	71.43	95.60	74.32
79	Holyoke	.....	62.50	88.85	76.55	100.00	88.50	.....	73.60	75.00	73.84	64.49	91.85	79.31
143	Lowell	.....	66.66	88.85	.....	.....	50.00	80.00	70.50	58.33	84.34	.....	77.55	71.75
144	Lynn	.....	79.16	.....	67.12	57.73	54.10	.....	81.20	60.00	77.77	70.60	100.00	71.72
53	New Bedford	.....	85.41	88.85	91.31	71.61	84.30	86.00	73.60	81.66	.....	67.16	81.15	81.15
5	Newton	77.08	.....	72.20	69.18	.....	95.20	.....	92.90	58.33	92.03	99.71	96.90	86.13
106	Pittsfield	.....	81.25	.....	55.69	56.57	91.00	.....	89.70	71.66	67.39	60.82	96.35	76.54
111	Salem	.....	83.33	98.84	81.87	.....	59.60	.....	77.30	58.33	.....	65.88	99.65	76.17
124	Somerville	.....	66.66	100.00	.....	.....	76.00	.....	84.30	61.66	75.53	69.99	50.05	74.54
4	Springfield	.....	83.33	.....	90.93	88.99	89.90	91.00	83.60	78.33	73.53	92.82	100.00	86.46
64	Waltham	.....	.....	72.20	83.14	.....	82.60	.....	87.30	61.66	68.82	90.21	99.95	80.41
	MICHIGAN													
145	Bay City	62.49	81.25	77.75	62.32	86.19	50.00	.....	83.10	95.00	71.80	73.10	54.05	71.56
84	Detroit	62.49	79.16	77.75	69.58	100.00	88.00	85.50	77.00	76.66	71.94	62.10	91.70	79.02
109	Flint	.....	81.25	74.42	60.67	92.50	75.70	.....	75.90	80.00	64.13	70.71	100.00	76.23
47	Grand Rapids	74.99	81.25	88.85	74.96	74.22	76.90	95.50	86.60	81.66	70.72	75.21	97.00	81.72
11	Highland Park	79.16	83.33	100.00	99.75	100.00	85.40	.....	87.60	76.66	.....	.....	50.00	84.99
131	Jackson	79.16	66.66	55.55	.....	.....	69.10	.....	79.00	78.33	73.51	64.88	100.00	73.98
72	Kalamazoo	79.16	83.33	88.85	74.62	100.00	64.40	.....	83.20	71.66	74.25	79.04	97.45	79.84
62	Lansing	83.33	.....	.....	90.09	.....	87.90	.....	79.10	73.33	75.25	57.03	98.85	80.64
51	Muskegon	83.33	83.33	.....	80.39	.....	73.00	.....	76.50	86.66	82.70	84.49	92.75	81.27
105	Pontiac	.....	81.25	83.30	59.39	80.00	73.50	.....	78.30	85.00	75.32	54.38	98.05	76.58
	MINNESOTA													
130	Duluth	.....	58.33	88.85	57.09	62.06	67.40	.....	85.50	75.00	74.65	67.43	100.00	74.14
26	Minneapolis	85.41	.....	83.30	61.45	96.00	80.20	94.00	89.80	71.66	76.41	74.49	100.00	83.54
55	St. Paul	83.33	.....	.....	60.98	100.00	71.10	90.00	88.50	71.66	74.53	72.55	97.55	81.02
	MISSOURI													
113	Kansas City	.....	70.83	.....	78.07	100.00	50.40	74.00	76.70	83.33	79.86	66.65	100.00	75.77
48	St. Louis	.....	75.00	94.40	88.52	83.60	82.50	83.00	83.40	91.66	70.37	62.55	91.60	81.72
137	Springfield	74.99	83.33	.....	69.48	99.52	50.00	.....	79.30	58.33	75.06	63.10	97.20	73.43
	NEBRASKA													
45	Lincoln	79.16	83.33	96.62	63.23	100.00	75.90	.....	87.50	56.66	78.98	.....	100.00	81.82
31	Omaha	.....	81.25	94.40	77.69	99.35	85.70	79.50	84.30	66.66	.....	62.83	97.85	83.00
	NEW JERSEY													
88	Camden	70.83	66.66	94.40	78.40	100.00	100.00	78.00	74.80	86.66	57.33	57.10	84.30	78.66
21	East Orange	79.16	87.50	100.00	97.31	79.00	95.10	.....	89.40	71.66	.....	74.88	50.00	84.04
125	Elizabeth	.....	83.33	.....	85.24	90.43	76.90	.....	83.00	75.00	63.20	63.72	50.00	74.49
104	Newark	54.16	72.91	97.73	93.28	97.79	66.00	87.00	83.80	98.33	65.01	59.60	50.00	76.71
80	New Brunswick	.....	66.66	88.85	87.40	100.00	78.20	.....	84.40	65.00	73.13	64.72	86.25	79.25
82	Passaic	.....	83.33	100.00	93.30	91.48	50.00	.....	85.60	78.33	.....	77.44	75.65	79.15
93	Trenton	.....	75.00	.....	81.60	95.76	91.80	75.00	76.80	75.00	67.37	66.38	83.75	78.53
	NEW YORK													
127	Amsterdam	.....	66.66	88.85	81.62	98.19	64.60	.....	84.30	75.00	.....	59.60	50.00	74.33
90	Auburn	.....	62.50	98.84	94.07	.....	90.00	.....	82.40	71.66	.....	61.88	52.55	78.63
27	Buffalo	85.41	81.25	100.00	88.31	98.21	85.20	80.50	75.50	76.66	.....	67.65	89.15	83.50
123	Elmira	.....	79.16	.....	63.86	96.44	67.60	.....	74.30	71.66	.....	64.49	86.90	74.63
63	Jamestown	.....	62.49	88.85	80.27	100.00	88.60	.....	86.20	73.33	74.08	55.93	87.55	80.51
25	New York	.....	100.00	77.75	99.54	91.87	90.60	85.00	84.60	81.66	73.34	60.38	77.35	83.70
81	Niagara Falls	83.33	.....	.....	72.91	98.17	87.40	.....	78.30	75.00	60.37	72.22	97.25	79.25
24	Poughkeepsie	.....	70.83	98.84	86.28	96.40	95.50	.....	75.30	70.00	.....	68.99	88.50	83.76
23	Rochester	.....	79.16	72.20	78.10	99.65	96.90	92.00	84.90	73.33	70.13	72.66	96.65	83.97
30	Syracuse	.....	79.16	94.40	71.75	100.00	92.40	86.50	82.30	56.66	82.39	72.33	85.60	83.13
32	Utica	.....	66.66	.....	71.47	99.21	92.80	.....	79.30	76.66	.....	72.22	98.35	82.87
92	Watertown	83.33	75.00	.....	89.82	58.03	85.90	.....	74.80	71.66	.....	65.22	99.60	78.55
58	Yonkers	79.16	64.58	77.75	89.76	.....	97.70	94.00	83.50	73.33	82.15	63.05	50.00	80.82
	NORTH CAROLINA													
152	Winston-Salem	.....	.....	88.85	82.08	100.00	50.00	.....	54.70	66.66	.....	54.16	95.85	69.70
	OHIO													
28	Akron	79.16	79.16	72.20	73.90	96.66	95.00	97.50	83.40	75.00	.....	54.72	83.30	83.27
67	Canton	.....	58.33	66.65	64.79	99.87	100.00	.....	79.60	65.00	83.08	.....	82.60	80.21
60	Cincinnati	83.33	82.29	.....	84.38	67.26	90.10	79.50	77.20	86.66	74.25	66.33	97.60	80.66
20	Cleveland	.....	79.16	.....	92.36	99.95	87.90	90.00	84.30	73.33	70.03	80.91	87.05	84.08
61	Columbus	.....	79.16	94.40	.....	.....	88.70	82.00	81.00	78.33	75.37	55.77	86.30	80.62
59	Dayton	79.16	79.16	97.75	70.51	64.74	83.60	93.50	80.70	76.66	78.82	61.66	90.30	80.82
91	Hamilton	.....	62.49	.....	70.43	78.05	91.60	.....	80.50	86.66	.....	57.54	86.95	78.63
2	Lakewood	62.49	68.74	98.84	99.61	100.00	100.00	.....	88.60	70.00	84.86	79.43	88.00	86.71
19	Lima	83.33	72.91	100.00	83.93	99.73	96.10	.....	83.30	61.66	.....	62.60	87.55	84.20
35	Lorain	.....	79.16	100.00	80.19	91.03	95.10	.....	79.30	75.00	74.60	59.88	92.15	82.72
126	Springfield	.....	.....	.....	67.43	61.87	76.20	.....	79.10	85.00	74.37	51.77	93.80	74.47
36	Toledo	79.16	79.16	94.40	.....	.....	84.50	87.00	80.10	66.66	.....	71.10	97.35	82.58
57	Youngstown	.....	74.99	77.75	.....	.....	92.60	85.50	78.60	75.00	76.87	67.77	88.75	80.87
	OKLAHOMA													
87	Oklahoma City	.....	83.33	77.75	.....	.....	86.80	.....	79.00	58.33	75.15	65.10	100.00	78.76
	OREGON													
22	Portland	70.83	80.20	72.20	79.21	84.62	73.90	95.00	93.10	85.00	.....	80.88	99.10	84.00
	PENNSYLVANIA													
138	Allentown	.....	70.83	50.00	67.51	99.56	85.70	.....	73.10	90.00	.....	59.32	50.00	73.16
52	Altoona	.....	62.50	96.62	80.98	100.00	93.20	.....	82.50	66.66	83.03	.....	50.00	81.18
117	Bethlehem	.....	64.58	55.55	63.62	.....	99.40	.....	82.10	90.00	60.09	59.99	88.10	75.41
100	Easton	.....	66.66	.....	62.98	.....	87.20	.....	75.30	83.33	74.27	77.22	88.70	77.49
73	Harrisburg	.....	81.25	97.73	79.81	100.00	72.70	.....	76.40	83.33	76.94	63.49	.....	79.80
115	Hazelton	100.00	62.50	72.20	56.12	.....	96.30	.....	76.50	81.66	70.65	71.66	50.00	75.46
118	Norristown	.....	70.83	72.20	88.25	81.47	91.30	.....	69.30	76.66	71.96	50.11	74.95	75.35
54	Philadelphia	87.50	75.00	.....	95.96	93.33	87.90	82.50	79.60	80.00	67.58	55.71	93.30	81.06
71	Pittsburgh	.....	79.16	88.85	.....	.....	87.40	70.50	75.50	100.00	75.51	65.83	86.50	79.85
108	Scranton	87.50	58.33	.....	79.93	100.00	83.90	75.00	75.40	86.66	70.25	51.99	73.85	76.49
46	Wilkes-Barre	87.50	64.58	98.84	79.65	99.80	81.40	.....	77.80	71.66	.....	67.10	93.75	81.77
97	York	.....	75.00	.....	76.58	100.00	92.20	.....	78.40	66.66	.....	50.38	70.55	78.03
	RHODE ISLAND													
154	Pawtucket	.....	70.83	72.20	61.81	59.65	80.00	.....	70.20	60.00	62.51	60.10	91.85	69.37
76	Providence	79.16	70.83	93.29	.....	.....	83.00	80.50	81.00	70.00	.....	64.27	89.35	79.65
	SOUTH CAROLINA													
156	Charleston	85.41	75.00	88.85	50.00	100.00	50.00	.....	50.00	63.33	.....	.....	97.85	69.13
	TENNESSEE													
158	Knoxville	.....	81.25	.....	55.91	82.93	67.30	.....	70.10	65.00	.....	60.99	50.00	67.08
148	Memphis	87.50	81.25	.....	85.85	67.39	03.30	50.00	67.70	66.66	.....	66.66	97.95	70.40
159	Nashville	83.33	75.00	.....	85.78	50.01	50.00	61.00	70.20	61.66	.....	51.38	93.60	66.39
	TEXAS													
140	Dallas	.....	81.25	94.40	73.27	84.26	50.00	79.50	72.00	55.00	.....	52.05	100.00	72.55
157	Fort Worth	81.25	79.16	66.65	55.09	62.50	50.60	.....	77.30	60.00	.....	50.00	100.00	67.53
129	Houston	.....	85.41	72.20	60.10	70.45	81.30	75.50	74.90	55.00	.....	59.27	100.00	74.29
142	San Antonio	.....	100.00	77.75	64.85	57.75	89.80	66.00	59.50	51.66	.....	51.88	99.10	71.81
	UTAH													
103	Ogden	.....	79.16	66.65	57.97	99.64	67.50	.....	90.25	63.33	.....	.....	86.60	76.88
107	Salt Lake City	.....	.....	77.75	57.48	54.57	78.60	85.50	88.50	71.66	65.85	73.33	100.00	76.54

* Double weighting.

Rank	Name of City	Street Cleaning	Garbage Collection	Sewerage	Total Paving	Durable Paving	*Fire Loss	*Death-Rate	*Infant Mortality	School Term	*High Schoo Enrollment	Library Circulation	Parks	Rating
	VIRGINIA													
98	Lynchburg	.....	66.66	.....	66.78	89.28	86.30	.....	76.00	73.33	.....	67.16	90.40	77.82
75	Newport News	87.50	87.50	83.30	.....	.....	98.00	.....	71.80	73.33	.....	50.38	75.35	79.69
89	Norfolk	87.50	87.50	83.30	73.37	97.66	88.70	77.50	71.70	66.66	76.01	52.77	81.85	78.65
135	Petersburg	.....	75.00	88.85	81.24	58.69	85.70	.....	55.00	70.00	.....	54.05	100.00	73.56
101	Richmond	100.00	62.50	98.84	.....	.....	89.70	68.50	69.50	66.66	.....	50.00	92.70	77.17
121	Roanoke	83.33	.....	.....	64.17	.....	97.50	.....	71.20	56.66	70.06	56.60	83.05	74.66
	WASHINGTON													
8	Seattle	79.16	.....	55.55	68.69	87.60	85.70	100.00	94.10	80.00	.....	80.66	97.65	85.30
102	Spokane	.....	81.25	61.10	56.42	54.92	76.20	86.50	89.40	71.65	.....	72.72	100.00	77.09
38	Tacoma	.....	79.16	.....	70.82	.....	79.50	.....	93.30	68.33	84.34	74.99	100.00	82.50
	WEST VIRGINIA													
112	Charleston	.....	.....	100.00	85.46	100.00	89.90	.....	65.20	63.33	68.99	57.54	57.85	76.03
	WISCONSIN													
12	Green Bay	.....	.....	.....	71.27	89.25	86.40	.....	79.20	78.33	100.00	74.33	90.25	84.96
33	Kenosha	79.16	62.49	.....	77.51	100.00	94.70	.....	83.90	78.33	70.08	84.94	97.45	82.86
95	La Crosse	.....	66.66	55.55	63.64	65.64	91.90	.....	86.00	68.33	.....	84.05	100.00	78.15
50	Oshkosh	.....	68.00	88.85	.....	.....	99.00	.....	86.70	81.66	.....	86.99	95.70	81.40
44	Racine	.....	58.33	94.40	.....	.....	94.60	.....	83.50	83.33	69.23	78.32	91.90	81.90
9	Sheboygan	.....	79.16	.....	83.68	85.56	88.20	.....	84.10	96.66	.....	66.05	97.25	85.29
70	Superior	.....	57.28	94.40	68.43	85.42	79.80	.....	83.50	71.66	.....	79.76	96.80	80.03

* Double weighting.

Cities in Their Order of Rank

Oak Park, Ill.	87.84	New Brunswick, N. J.	79.25
Lakewood, Ohio	86.71	Niagara Falls, N. Y.	79.25
Berkeley, Calif.	86.68	Passaic, N. J.	79.15
Springfield, Mass.	86.46	Muncie, Ind.	79.10
Newton, Mass.	86.13	Detroit, Mich.	79.02
San Francisco, Calif.	85.51	Colorado Springs, Colo.	78.95
Davenport, Iowa	85.45	Miami, Fla.	78.94
Seattle, Wash.	85.30	Oklahoma City, Okla.	78.76
Sheboygan, Wis.	85.29	Camden, N. J.	78.66
Bridgeport, Conn.	85.23	Norfolk, Va.	78.65
Highland, Park, Mich.	84.99	Auburn, N. Y.	78.63
Green Bay, Wis.	84.96	Hamilton, Ohio	78.63
Stockton, Calif.	84.95	Watertown, N. Y.	78.55
Long Beach, Calif.	84.87	Trenton, N. J.	78.53
San Diego, Calif.	84.70	Cedar Rapids, Iowa	78.16
Oakland, Calif.	84.35	La Crosse, Wis.	78.15
Wilmington, Del.	84.34	Sioux City, Iowa	78.12
Fort Wayne, Ind.	84.30	York, Pa.	78.03
Lima, Ohio	84.20	Lynchburg, Va.	77.82
Cleveland, Ohio	84.08	Denver, Colo.	77.49
E. Orange, N. J.	84.04	Easton, Pa.	77.49
Portland, Ore.	84.00	Richmond, Va.	77.17
Rochester, N. Y.	83.97	Spokane, Wash.	77.09
Poughkeepsie, N. Y.	83.76	Ogden, Utah	76.88
New York, N. Y.	83.70	Newark, N. J.	76.71
Minneapolis, Minn.	83.54	Pontiac, Mich.	76.58
Buffalo, N. Y.	83.50	Pittsfield, Mass.	76.54
Akron, Ohio	83.27	Salt Lake City, Utah	76.54
Los Angeles, Calif.	83.15	Scranton, Pa.	76.49
Syracuse, N. Y.	83.13	Flint, Mich.	76.23
Omaha, Nebr.	83.00	Brockton, Mass.	76.20
Utica, N. Y.	82.87	Salem, Mass.	76.17
Kenosha, Wis.	82.86	Charleston, W. Va.	76.03
Waterloo, Iowa	82.75	Kansas City, Kans.	75.77
Lorain, Ohio	82.72	Quincy, Ill.	75.55
Toledo, Ohio	82.58	Hazelton, Pa.	75.46
Rockford, Ill.	82.55	Savannah, Ga.	75.45
Tacoma, Wash.	82.50	Bethlehem, Pa.	75.41
Washington, D. C.	82.43	Norristown, Pa.	75.35
Sacramento, Calif.	82.34	Portland, Me.	75.33
Terre Haute, Ind.	82.15	Cambridge, Mass.	75.13
Hartford, Conn.	82.09	Roanoke, Va.	74.66
New Haven, Conn.	82.04	New Britain, Conn.	74.66
Racine, Wis.	81.90	Elmira, N. Y.	74.63
Lincoln, Nebr.	81.82	Somerville, Mass.	74.54
Wilkes-Barre, Pa.	81.77	Elizabeth, N. J.	74.49
Grand Rapids, Mich.	81.72	Springfield, Ohio	74.47
St. Louis, Mo.	81.72	Amsterdam, N. Y.	74.33
Indianapolis, Ind.	81.53	Haverhill, Mass.	74.32
Oshkosh, Wis.	81.40	Houston, Tex.	74.29
Muskegon, Mich.	81.27	Duluth, Minn.	74.14
Altoona, Pa.	81.18	Jackson, Mich.	73.98
New Bedford, Mass.	81.15	New Orleans, La.	73.96
Philadelphia, Pa.	81.06	Kansas City, Mo.	73.85
St. Paul, Minn.	81.02	Louisville, Ky.	73.58
Des Moines, Iowa	80.99	Petersburg, Va.	73.56
Youngstown, Ohio	80.87	Jacksonville, Fla.	73.53
Yonkers, N. Y.	80.82	Springfield, Mo.	73.43
Dayton, Ohio	80.82	Allentown, Pa.	73.16
Cincinnati, Ohio	80.66	Peoria, Ill.	72.98
Lansing, Mich.	80.64	Dallas, Tex.	72.55
Columbus, Ohio	80.62	Fall River, Mass.	71.89
Jamestown, N. Y.	80.51	San Antonio, Tex.	71.81
Waltham, Mass.	80.41	Lowell, Mass.	71.75
Boston, Mass.	80.30	Lynn, Mass.	71.72
Fitchburg, Mass.	80.23	Bay City, Mich.	71.56
Canton, Ohio	80.21	Pueblo, Colo.	71.43
Chicago, Ill.	80.19	East Chicago, Ind.	71.35
Wichita, Kans.	80.13	Memphis, Tenn.	70.40
Superior, Wis.	80.03	E. St. Louis, Ill.	70.39
Pittsburgh, Pa.	79.85	Tampa, Fla.	70.33
Kalamazoo, Mich.	79.84	Shreveport, La.	70.06
Harrisburg, Pa.	79.80	Winston-Salem, N. C.	69.70
Baltimore, Md.	79.75	Lexington, Ky.	69.43
Newport News, Va.	79.69	Pawtucket, R. I.	69.37
Providence, R. I.	79.65	Everett, Mass.	69.27
Topeka, Kans.	79.42	Charleston, S. C.	69.13
South Bend, Ind.	79.36	Fort Worth, Tex.	67.53
Holyoke, Mass.	79.31	Knoxville, Tenn.	67.08
		Nashville, Tenn.	66.39

Geographical Influence on Results

A strong geographical influence is at once apparent from an inspection of the results, with the odds greatly in favor of the Pacific Coast cities and greatly against the Southern cities. Only one of the twelve Pacific Coast cities included falls below 82, and no city below the Mason and Dixon line, with the single exception of Washington, reaches 80. The New England and Central cities range from very good ratings to very bad.

More interesting perhaps is the effect of state lines upon the results. The following table shows the average rating for all the cities in each state having three or more eligible cities:

State	No Cities	Aver. Rating
California	8	84.56
Wisconsin	7	82.08
Washington	3	81.63
Ohio	13	81.52
Iowa	5	81.09
Connecticut	4	81.00
New York	13	80.58
Indiana	6	79.63
Minnesota	3	79.56
New Jersey	7	78.69
Michigan	10	78.58
Illinois	6	78.23
Pennsylvania	12	77.92
Massachusetts	17	77.14
Missouri	3	76.97
Virginia	6	76.92
Colorado	3	75.95
Florida	3	74.26
Texas	4	71.54
Tennessee	3	67.95

California leads with a phenomenal record. Massachusetts cities show greater extremes than those of any other state, ranging from 69.27 to 86.46.

The Effect of Home Rule

The comment naturally aroused by these figures is: "What effect does home rule have upon a city's rating?" The average rating for all cities enjoying home rule provisions was 80.02; for those without such privileges it was 77.05. The average rating for the 33 city manager cities included in the study was 78.75; for the remaining cities it was 78.56. The results in this case were too close to justify conclusions. Perhaps the city manager plan is too recent in most cases to have affected such deep-seated results as are measured by this index. As the city manager cities were rather equally distributed between the cities of different size groups, their respective populations could not have affected these results.

Average Rating by Population Groups

An attitude rather frequently taken is that small cities have the advantage in such an index. Just the reverse is true. The average rating for the different size groups is as follows:

Cities over 500,000	81.86
300,000-500,000	79.44
100,000-300,000	78.45
50,000-100,000	78.38
30,000- 50,000	77.82

Average for entire country 78.60.
Range for entire country 66.39-87.84

Possibilities for the Future

Of paramount interest and importance is the relation of the tax rate to increased city service, using a tax rate corrected to allow for variations in the basis of assessment. An attempt will be made later to show what amount of correlation, if any, exists between a high tax rate and a high service rating. While the results of such an experiment could not be credited with too precise a significance, they might show some interesting suggestions of economy or extravagance.

Perhaps the most outstanding result of the survey is the suggestion of tremendous possibilities for the future. When 100 represented a possible score on the basis of present achievement in various lines, no city ranked as high as 90. The old question remains with us. Are we giving to our city affairs scientific skill in engineering, finance and social problems commensurate with that being utilized in other fields of endeavor? Are we thinking of our city governments as affording a gateway to the "art of living" to more than half of our population directly and to multitudes of others indirectly? The government of a modern city is a tremendously complicated and difficult job. Politics is no longer sufficient to the task; we must make of municipal government a science.

EDITORIAL NOTE.—For comment on certain limitations to Miss Walker's methods, by A. E. Buck, see the department "The Taxpayer's Dollar," at page 154 of this issue.

Ultimate Remedies for the Traffic Problem

A Statement Prepared by the Editor of The American City for a Round Table Discussion of This Subject at the Annual Convention of the Chamber of Commerce of the United State, May, 1929

TO discuss "ultimate remedies" conclusively, the first requirement is an answer to the question, How ultimate is ultimate? One is reminded of the rival paint dealers, one of whom advertised "My colors are permanent," and the other, not to be outdone, proclaimed that his colors were not only permanent but *remained* permanent.

Until our public authorities shall stop raiding birth-control clinics and begin raiding engineers' laboratories, no solution of the traffic problem is likely to be permanent. For as long as our population continues to increase and new methods of crowding and transporting the population continue to be invented, any "ultimate" solution of the traffic problem must be limited by the distance through which we are able to peer into and control the future. Such a limitation is no excuse, however, for a *laissez faire* attitude; it is rather a challenge to peer through the best lenses we can perfect, and to control the future through the most intelligent laws we can draft and the soundest public opinion we can organize.

As a basis for discussion, I suggest that:

1. We need a general recognition of the fact that there is not room for all the world—or all the town—to move or park in the same street at the same time; and a recognition of the further fact that, while some landowners or department stores or theaters may benefit by an attempt to concentrate the business of a city in a needlessly small area, such excessive congestion is uneconomic and against the public interest.

In designing big buildings architects have been able to compute with reasonable accuracy the requirements of *vertical* transportation. No intelligent builder would expect to add another ten stories to an existing ten-story building unless the foundation and framework of the structure and the space available for elevators had been planned originally with such an addition in mind. But these same builders go calmly—or wildly—ahead, doubling or quadrupling the demands on our streets for *horizontal* transportation, with a naive faith that somehow the public authorities will solve the insoluble problem which results.

2. We need a general recognition of the fact that the traffic problem has to do not only with Main Street or Fifth Avenue or the Loop, but with the safety of the child in getting to school and playground; and with the time of the workman in getting to his factory, with the convenience of the stenographer in getting to her office, and with the general ease and comfort of traffic circulation in the city and region for business or pleasure. This involves a recognition of the fact that we are no longer in the buggy-and-hitching-post era of city building, and that a degree of imagination and skill is needed in planning our cities for the motor age, comparable to that which has gone into the planning of the modern skyscraper or automobile.

Of some things we are quite sure already; such, for example, as that on heavily traveled highways grade crossings with railroads or with other heavily traveled highways ought to be abolished as speedily as economically possible; that bypass routes ought to be provided to keep away from congested centers traffic which has no need or desire to be there; that the elimination of jogs, dangerous curves and heavy grades on our highways is much to be desired; that new streets where growing traffic is expected should be planned in advance for flexibility in roadway widening; and that such surgical remedies as subways or double-deck streets are tremendously expensive operations which should be undertaken only when surgery is the only remedy for strangulation, and with due precaution lest the operation send the patient from the hospital to the poorhouse.

3. We need a general recognition of the fact that public opinion and the compulsion of law and a just method of assessing costs must join forces to prevent ignorance or cupidity from throttling the rational development of our cities.

In the formation of an intelligent public opinion, much more could be done than at present by city planning commissions and zoning boards. For one thing, such bodies might constitute themselves a sort of extra-legal advisory committee to show the speculative builder, or even the department store or theater owner when he is considering a new site, that some consideration of the public interest in location, size of building, and provision of parking or garage space may prove to be not only enlightened citizenship but good business as well. Through such moral suasion, also, many realtors could be convinced of the wisdom of setting aside adequate space for public playgrounds in new subdivisions.

4. We need a general recognition of the fact that the compulsion of law must forestall in other cities the almost irreparable blunders which are being made in New York through lack of a city planning commission and through the enactment of a zoning ordinance which allowed too intensive use of the land in the first place and is constantly being weakened by variance and amendment.

The Merchants Association of New York released to the newspapers for publication last week a statement based on replies which its President, Willis H. Booth, had received to an inquiry addressed to a group of representative business and professional men, as to the city's public improvement projects and policies. The statement says, in part:

"Apparently, rapid transit and traffic relief are uppermost in the minds of those addressed, for more of the replies thus far received and classified refer to these subjects than to any other. About 25 per cent of the letters deal with subways or some allied phase of the rapid transit problem. About the same percentage deal with bridges and tunnels or other means of relieving street congestion."

Among the opinions quoted is that of David F. Houston, President of the Mutual Life Insurance Company, who says:

"I assume that the additional Subway System proposed [at a cost of $600,000,000] is to furnish relief in the transportation situation. Personally, I think that more rapid transit will simply add to the congestion unless something is done to limit the number of cubic feet of space in Manhattan and in the immediate neighborhood of Manhattan in which people may live and work."

And Albert E. Siebert, lawyer, is quoted:

"The root of our transportation and street traffic difficulties lies in our unrestricted building. At present we are not making progress, but are sliding backward. Every fifty-story building erected means so many more persons on our overcrowded sidewalks and crosswalks and so many more vehicles on our nearly impassable streets, and also means a definite increase in the intolerable congestion of our subways. It is not possible to build subways fast enough to keep pace with such insane building."

As the pioneer in comprehensive zoning, New York may be condoned for the concessions to congestion made in 1916, but will other cities admit that they are too stupid or indolent to learn anything from New York's mistakes or to profit thereby?

5. We need a general recognition of the fact that, as a means of checking excessive taxation and of preventing high-

way (or subway) robbery, there must be a much wider application of the principle of benefit assessments for street widening or rapid transit, especially where the demand for such improvements results from or is followed by a more intensive use of the adjacent land and the inevitable increase in costs for traffic regulation, fire protection and other burdens on the public purse.

Why should not the principle be recognized that, as a general rule, no amendment to a zoning ordinance permitting greater cubage of buildings ought to be adopted, and no additional traffic or transportation facilities ought to be provided in any street unless the city could recoup from the landowners, by special assessment, so much of the expense involved as may reasonably be computed to be for their special benefit? And if the further principle could be established that, in or adjacent to all new or enlarged business buildings, owners desiring parking or garage space for employees, tenants or customers, must provide it at their own expense, a substantial check to mounting congestion and mounting taxation would result.

6. And last, but of prime importance, we need a willingness on the part of the great foundations and men of means to invest funds in demonstration towns and subdivision developments planned for the motor age. There is great promise in such a new system of site planning as is now being demonstrated in Radburn, New Jersey, by the City Housing Corporation of New York on a "philanthropy and 6 per cent" basis; and in the neighborhood unit ideas proposed for outlying sections of existing cities by Clarence Arthur Perry in a forthcoming report of the Regional Plan of New York and Its Environs. To apply imagination and technical skill to the designing and building of garden cities and of new neighborhoods in existing cities, may prove, through the contagious power of a good example, to be the most practical way to bring about the discovery and adoption of ultimate remedies for the traffic problem.

Art Show Emphasizes Unique Idea in Practical Playground Work

By FRED WILLIAMSON

ANY activity which has for its objective the stimulation of human minds toward a more complete self-expression is a worth-while movement. After all, one of the chief purposes in life is to make life itself worth living. Any effort that contributes to that end is of the utmost value, not merely as an ideal, but in the ideas which the effort fosters.

From this standpoint one of the most humanly interesting exhibitions at the Louisiana State Fair last year, and one which will in all likelihood be repeated this year, was that which represented the work of the Recreation Department of the city of Shreveport. This exhibit expressed more than a volume of words could voice it, the tangible worth that accrues to a community through the encouragement of esthetic results in the activities of a city's playgrounds.

It may seem, at first blush, to be a far-fetched idea that art is one of the manifestations of playground activity, but the proof of the assertion lies in the quite remarkable collection of art objects which have been created through work initiated by the Shreveport Recreation Department, under Grover C. Thames, the Director. The "first annual" exhibit occupied no inconsiderable section of the fine arts building at the Fair Grounds.

It is not necessary to judge the accomplishments of the playground artists from the usual standards of esthetic effort, though the work in this exhibition has creditable merit, considered from any viewpoint. The results, however, stand out with significant importance, when they are considered in relation to their basic purpose. From this practical angle they offer an illuminating and remarkable emphasis to a new and altogether constructive idea in the training of the human mind—in adults, as well as children—to a finer feeling and more lofty expression than that of mere physical energy.

Broadening the Appeal of Recreation

The art section of the Shreveport Recreation Department was instituted to fill a definite need. Though according to popular conception the chief function of a department of recreation is to serve an athletic urge among the youth of the city, it has been found that the facilities afforded in this connection failed to satisfy completely the recreation needs of many children or to minister at all to those of others whose physical capabilities or mental complexes shut them out of these enjoyments. What should be done with those who were frail or crippled, and perforce could not enter into the more strenuous athletic games? Or with those who found a recreational satisfaction in activities of the mind rather than those of the body? Should they be compelled to take part in feats of physical prowess or be penalized by denial of any participation in recreational enjoyment?

This was the problem, and it was met by the initiation of an experiment that is probably unique in playground annals of this country. Art classes were formed as a distinct element of the Department's work. Children and grown-ups with an esthetic urge joined the classes for the "fun they could get out of it." While artistic standards were set up and qualified instructors employed, no attempt was made to force the participants into artificial grooves of activity. The work was essentially "play." Each individual was allowed to follow his own bent in esthetic expression.

Children were taught modeling in clay as well as various forms of decoration and handicraft. They learned harmony and color values. They painted vases and book-ends and statuary, and absorbed ideas in form and design. They wove baskets and made tables and stools of wickerwork. They made plaques of still life done with plastic clay, and then decorated lamps and designed lampshades. They designed and built birdhouses and a hundred other things suggested by their own impulse for creation and artistic expression.

The art and handicraft work of the Recreation Department was not restricted to children. Older folks, who had never had a chance to express themselves esthetically, were intrigued by the new idea in recreation and joined with enthusiasm in the opportunity to give effect to an inner urge.

The results offer a concrete demonstration of the success that has attended this remarkable experiment. They are highly significant because entirely practical. The importance of the activity as an educational stimulus is incalculable, aand its novelty as an incident to recreational activity is submerged in the quality of constructive stimulation which it gives to self-expression both among young and old.

This, then, is what imparted to the Shreveport Recreation Department's exhibit at the Fair last year a value and an interest far more important than a mere "art exhibit." By its influence a great group of children and adults have learned something of their own possibilities in manifesting an art sense, and they have been given an incentive toward accomplishment that must in the very nature of things conduce to a better and finer citizenship.

Cost Cutting on County Gravel Road Maintenance

By T. R. PATTERSON
COUNTY ENGINEER, GODERICH, ONTARIO

MODERN traffic has long since rendered obsolete the old methods of applying gravel of any quality indiscriminately upon our roads, and the demands of today are for fine, hard gravel, passing, at largest, a 1-inch ring, and containing a sufficient amount of fines and binding material to make a dense mass that will consolidate. Careful selection of the material is therefore necessary, and after choosing the material, the gravel plant must be designed to place this material in a bin, in a suitable condition for the road, at the lowest cost. Generally, a crusher is required. In Huron County, Ontario, there is no gravel deposit from which good, pit-run material can be secured.

Crushing Plants Revamped

The style of crushing plant formerly used, with side elevator, crusher and bin, is not satisfactory for producing fine material, as there is always an amount of oversize stone that must be recrushed or wasted. Moreover, the screens which are intended to separate the fines before the crusher is reached are not always efficient. On this account we have remodeled two of the plants owned by the county, and propose to remodel others by so arranging that all pit-run material is elevated directly to a rotary screen above a bin; the fines are screened out, and the coarse falls into a compartment from which it feeds into the crusher alongside. The elevator from the crusher delivers the crushed material to the same screen, and any oversize is again put through the crusher. We have thus a closed circuit, and we find these plants to be very satisfactory, and with ordinary 9 x 16 crushers have a capacity of from 60 to 90 yards of coarse gravel per day. A belt conveyor would be more satisfactory than a bucket elevator for elevating the pit-run material, and we have under consideration, too, the installation of a small dragline to replace this elevator. It is found that our costs on this plant are very little greater than those with the old style of plants, producing coarser material, and we have no wasted stone.

There is a type of crusher now being built that is designed to crush all material down below a definite size. The bearing in the top of the jaw carries the crusher cam-shaft so that a vertical motion is imparted to the jaw, assisting the feed, and the horizontal motion is a maximum at the top and is zero at the bottom opening.

Delivery of Material to the Road

After the proper material has been placed in the bin, the next problem is to have it drawn to the road and spread. The use of trucks is found to be a big money-saver in this work, and teams can no longer compete, even though the haul be very short. We find that truck costs are from 50 to 90 per cent of the costs of team haul. We find, too, that the new fast trucks of the biggest size on dual pneumatic tires are the most economical of operation and operate at a great saving over small trucks or the old, heavy, slow trucks on hard tires. Furthermore, the pneumatic tires are much less severe on the roads than hard-tired vehicles. Of course, one of the big economies of truck hauling is effected by the spreading, which the truck performs while unloading, in a better manner than can be done by hand.

Dragging

Dragging is the item of maintenance that is second to surfacing as regards cost, and good gravel roads cannot be maintained without the most careful attention to it. Many changes in methods and demands have taken place since we first heard of the split-log drag, and a variety of machines have been evolved. For general maintenance work, however, the team grader for the patrolman, and the heavy power graders for district operators, are found to be most satisfactory for conditions in Huron County. In the spring, when the roads are soft, the patrolman with the team grader is able to level the road frequently and promptly, assisted from time to time by the power grader. During the summer months, particularly during the dry weather, the heavy power machine is indispensable, as the lighter machines cannot make any impression on the hard road.

Operating Costs of Power Graders

These power graders, equipped with scarifiers, can be made to do a great variety of work, and can change a bad road into a good one in a very short time. They operate very economically, or at a cost of about $16 per day, allowing 20 per cent for depreciation. Considering the weight of these machines and the work they do; that they travel from 30 to 35 miles per day with a 10- or 12-foot blade; that they do all that horse-drawn equipment will do, and many things that horse-drawn equipment will not do, it will be seen that they are a very useful and economical implement to have. For scraping operations, flat edges on these outfits operate satisfactorily, and at a saving.

Other Maintenance Equipment

We have used, as well, heavy drags drawn by tractor, but, while this equipment will do good work in most cases, it is found that the cost of the tractor and the drag is almost as great as that of the power grader, and there are sections of road that these outfits cannot help, that may be put in good condition with the power grader. The chief objections to these outfits are that they drag along an unnecessary load of material before the several blades, causing a waste of power, and that the weight per inch of blade is much lower than that of the power grader.

We have also used a spring blade grader attached to a truck. This is a very economical type of machine where

Perfect Maintenance the Cheapest

Maintenance is the first problem which those in charge of roads have to consider, and it is necessary to assume that any expenditure made must give a return in service to the traffic. It follows, therefore, that improvements may be made by having the work done for less money, and also by doing the work in such a manner that vehicles can operate at lower costs, and be permitted to make greater earnings. Maintenance of roads is necessary, too, as a protection to the investment which has previously been made in the road, so that, considering all factors, it may be assumed that the gravel road that is maintained as nearly perfect as practicable is the most economical. T. R. P.

the gravel is not too much compacted. However, a heavy truck is necessary, and a truck having hard tires may be used, as the speed of operation should not be over 12 miles per hour. With a suitable outfit and under favorable conditions, this is the most economical method of scraping roads, as the machine will travel 80 miles per day and over.

Calcium Chloride Treatment

It is being found that for roads having a traffic of 500 vehicles per day and over, calcium chloride is a valuable material. Calcium chloride appears to be a natural gravel-road preservative and dust preventive. It protects the road during the summer and appears to protect it during the severe spring break-up season. After it has been in use a few years, the cost of continuing the treatments becomes much less. On the roads of St. Clair County, Mich., where the material has been in use since 1921 continuously, roads are being maintained by an application of 65 sacks per mile, annually, on somewhat narrow roads. They find there that very little gravel is required to be added from year to year, and when this saving is added to the value of the dust elimination, we are forced to recognize a valuable road material. Calcium chloride roads cannot be smoothed excepting after a rain or by the use of the heaviest machines, so that care in this regard is needed. Moreover, the gravel must be of good quality and contain a sufficient amount of binding material before success in the use of calcium chloride can be expected.

Snow Removal

Snow removal is a branch of road maintenance that will demand an increasing share of attention in the future, for the public have need of open roads in these days, as there is little teaming to be done with sleighs, and there are poor snow roads at many times. There is also too great an investment in motor vehicles and roads to permit of its being rendered useless while the roads are snow-covered, and much money will be invested within the next few years in snow-removal equipment. Heavy trucks are needed, and while V-plows with wings will do good work in light snow, it is my opinion that this type must be supplemented by a rotary plow that can be put into action at any time for handling heavy drifts. I think the ideal plow has not yet been built.

Weed Removal

For destroying weeds, we have used nothing but the scythe and farm mower, so far, but special mowers are built and used satisfactorily for cutting down into ditches. Spraying the weeds with oil, and burning, is a plan being used in some localities with success.

Large Investment Necessary

Generally speaking, this is an age of evolution from horse-drawn machines to power machines, and this change is forcing municipalities to make large investments in equipment. Much of the success in the operation of these machines depends upon securing the best machine, of the right capacity for the job to be undertaken; it is very easy to spend money on machinery, but it is very hard to make a machine pay for itself if it operates at a big cost or for only a few days each year. Our experience has been that the best is the cheapest, and when a machine must be purchased, the plan should be to decide on the best machine and then buy it as cheaply as possible.

ACKNOWLEDGMENT.—From a paper presented before the Fifteenth Annual Conference on Road Construction of the Province of Ontario.

Ratproofing: An Addendum to the Building Code

"Go!" cried the Mayor, "and get long poles,
Poke out the nests and block up the holes!
Consult with carpenters and builders,
And leave in our town not even a trace
Of rats!"

(ROBERT BROWNING.)

PREOCCUPATION with more urgent affairs prevented anybody's paying attention to this official ratproofing order issued in Hamelin town in Brunswick, in 1678. And a similar reason has operated against the efficacy of community rat-elimination campaigns which have been undertaken in many of our own cities more recently and up to this very day. Now the need for effective action becomes imminent. The rat begins to "assume the proportions of a grave national problem," according to the findings of recent intensive studies carried on by the United States Public Health Service.

These studies show that, through destructiveness and the consumption of food, the rat is costing the people of our country $400,000,000 annually. And even greater than the economic menace is the public health meanace. Of all disease-bearing animals, it is stated, the rat probably stands supreme in the cost its presence has entailed upon mankind in toll of lives and money.

To combat the rat successfully, there must be general education in its habits of living and breeding. Destructive and suppressive measures must be studied and put into practice as a community undertaking backed up by the cooperation of every householder and proprietor of a business establishment. But, the most relentless warfare through trapping, fumigation, and poison baits, and programs of starving and harrying is not enough.

"Several eminent authorities have pointed out the fallacy of expecting trapping and poisoning operations to eliminate a rat population. The relative increase in food supply and harborage thus made available to surviving rats stimulates breeding and longevity to a degree which tends to compensate for numerical losses." The destruction of harborage and the protection of food supplies must be ensured, and, to accomplish this, effectual ratproofing is essential, and should be brought about by anti-rat ordinances in cities, and anti-rat laws in states.

"In ratproofing any building, the following parts have to be considered: ground area, walls, ceiling, garret, roof, dead spaces in general, ventilators, abandoned sewers, doors, windows, outside piping, water and sewage pipes, downspouts, wiring and air or light shafts. By the omission of some small detail an otherwise ratproof structure may become badly rat infested." Specific recommendation include the following:

"The ratproofing of floors of buildings is secured either by the elevation of the structure, with the underpinning open and free, or by marginal walls of concrete, stone, or brick, laid in cement mortar sunk 2 feet in the ground, fitting flush with the floor above. The walls must fit tightly to the flooring and not merely extend to the joists or supporting timbers, as this would result in open spaces.

"Ratproofing by elevation is chiefly applicable to small and medium-sized buildings. The intent is to have sufficient elevation so that the ground area beneath shall be exposed, as free from covert, and as clean as land unbuilt upon. . . . For more pretentious dwellings where sufficient care can be exercised to prevent rodents from gnawing through plank flooring a marginal ratproof foundation will suffice. . . ."

It is recommended that ratproofing legislation should provide a minimum standard for concrete, both as to quality and quantity of its component parts, and as to the dimensions of construction. The thickness of floors should not be less than 3 inches of concrete with ½-inch surface of cement, and walls should not be less than 6 inches in thickness. Standard brands of cement, clean, sharp sand, and hard stone in proportion 1:2:3, or as approved by a competent engineer, should be required in all concrete construction."

Further recommendations for the ratproofing of buildings of various sorts are given in Public Health Bulletin No. 180, "The Rat: Arguments for Its Elimination and Methods for Its Destruction," copies of which may be ordered from the U. S. Government Printing Office, Washington, D. C., for 5 cents each. The public ofcial aroused to a responsibility for adding a ratproofing clause to the building code, or developing a separate anti-rat ordinance, as well as the civic group initiating a rat-elimination campaign, and householders and building owners in general, will find much that is of value in this study.

Progressive Street Widening by Setting Back New Buildings Proves Its Value in Akron

By E. A. KEMMLER
CHIEF ENGINEER, BUREAU OF HIGHWAYS, AKRON, OHIO

THE economic value of the time factor in widening main thoroughfares to accommodate the ever-increasing demands of motor traffic has been strikingly demonstrated by the experience of Akron. This year marks the tenth anniversary of the adoption by the Council of a main thoroughfare plan involving approximately 20 miles of street, 75 per cent of which were occupied by single and double street-car tracks, as follows:

	Width Existing (Feet)	Width Proposed (Feet)	Approximate Length (Feet)
Arlington St., Market to S. Corp. Line	60	80	7,600
Bowery St., Wooster to South	66	86	4,700
Exchange St., Locust to W. Corp. Line	60	84	11,500
Exchange St., Washington to Market	60	84	8,200
Grant St., Exchange to Archwood	45-60	70	10,200
*Goodyear Blvd., Market to Martha	50	70	1,100
High Street, Hackett to Miller	45-50-60	66	4,500
Howard St., Main to Mill	60	68	500
*Johnston St., Spicer to Arlington	60	80	5,600
Main St., Chestnut to S. Corp. Line	60	84	13,000
Market St., High to Arlington	60	80	7,600
Market St., Arlington to E. Corp. Line	60	74	4,400
Market St., Howard to W. Corp. Line	60-66	80	9,700
*South St., Main to Manchester	50	80	6,200
*South St., Main to Spicer	60	80	5,000
Wooster Ave., Bowery to East Ave	60	84	5,000
Total (19.87 miles)			104,900

* Car lines projected but never constructed.

The above program was recommended to the Planning Commission by the writer, at that time engineering adviser to the Commission, and was adopted and passed on to the City Council and by that body translated into law by the passage of three ordinances, on February 24, April 14 and May 26, 1919, respectively, whereby the plans of the Commission were adopted and building setback lines established in accordance therewith.

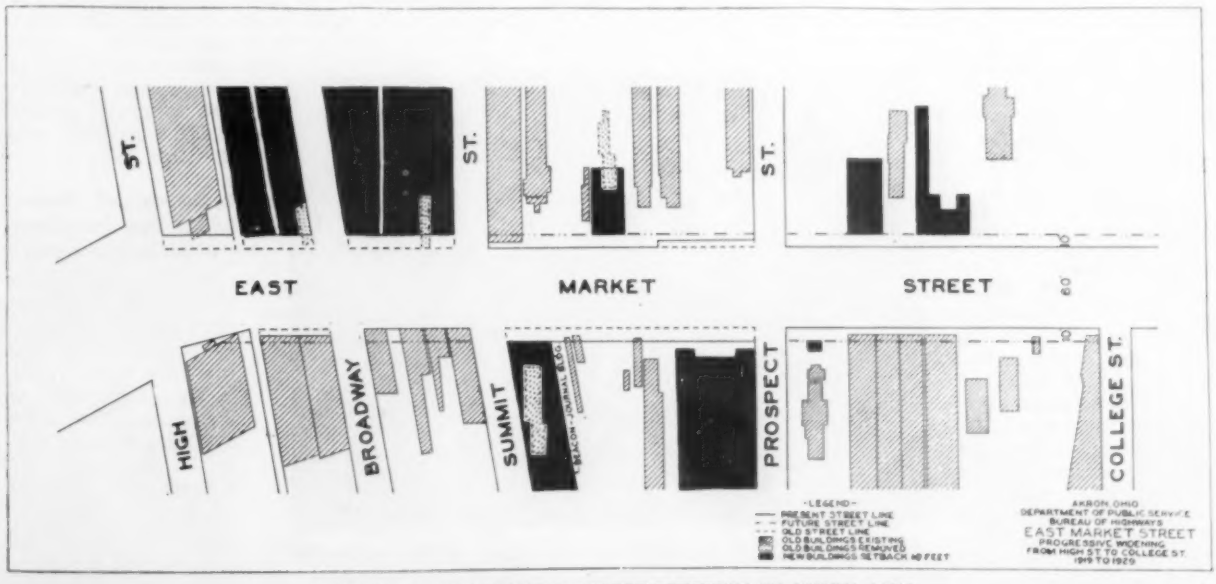
It was anticipated at that time that the entire program might be completed without appropriation within a period of fifty years. As about 40 per cent of the street was solidly built up with business buildings, the cost of widening them by the exercise of the city's power of eminent domain would have been prohibitive ($20,000,000 is a fair estimate, and the population did not exceed 200,000). The plan of progressive widening by setting back all new buildings as the old ones become obsolescent was the only feasible one, and has been carried out except in the case of the "bottle neck" on West Market Street, between Howard and Cherry, two short blocks, which needed early attention and could not wait for the process of "letting nature take its course." These two blocks were widened in 1922 by moving back some of the buildings and remodeling others, at a cost of $425,000.

Setback Lines Legalized by Zoning Ordinance

The setback provisions of the ordinances were without legal force, but they were later vitalized by the passage of the zoning ordinance by which building lines were established under the police power on practically all of the streets in the city. In the meantime the good citizens observed them without question as to their legality.

The physical and economic results of these ordinances, after the first decade of their existence, may be of interest to engineers and officials of other cities. The story is as follows:

In one case only during the entire ten years has an owner refused to set his buildings back without compensation. This occurred before the passage of the zoning law, and since he was entirely within his rights, the city paid him liberally for his land and damage. In every other of the several hundred cases the owners have shown a high degree of public spirit by observing the setback lines



EXAMPLE OF PROGRESSIVE STREET WIDENING IN AKRON, OHIO
New buildings, set back to new line, are shown in black

without a protest and without demanding compensation for the land thus made available for the use of the public as additional space until the roadway is widened.

In the case of East Market Street, from High Street to College Street, the voluntary widening has progressed to such an extent that a portion of the roadway has already been widened from 45 to 56 feet, by setting back the curb and paving the additional strip of 5½ feet on each side, at the expense of the city, after the property owners had conveyed the title to the 10-foot setback strip to the city without compensation. The accompanying map shows the present status of this widening project.

How About Two Millions Saved Will Be Used

To January 1, 1929, the saving to the city due to the observance of the setback lines, expressed in terms of volume of new brick and stone building which would otherwise have occupied the spaces between the property and setback lines, was 2,436,000 cubic feet. At a round price of 80 cents per cubic foot, including cost of new fronts and damage to the remainder of the buildings, the saving in dollars would be $1,948,800, an average of nearly $200,000 per annum.

Having saved this sizable amount in ten years, the city is now about to spend an approximately equal sum to complete the widening of about 4½ miles of street which was included in the original program:

East Market St., High to Wigley	$1,565,000
East Exchange St., Grant to Market	335,000
South High St., Hackett to South	200,000
South Arlington St., Milton to Wilbeth	40,000
Total	$2,140,000

This amount represents one-half the estimated cost; the other half will be assessed against property benefited by the improvement, as permitted under the Ohio constitution.

A bond issue for the city's portion was approved by the electors at the November, 1928, election. It will require about four years to complete this partial program. In the meantime the progressive widening of the remainder of the group will continue. The engineers for the Planning Commission are to draw a complete thoroughfare plan, with many extensions and new thoroughfares, which will be added to the program of transportation improvement, to be carried out gradually, after additional bond issues for this purpose have been authorized.

In this manner the city will probably complete the original fifty-year plan without overtaxing its borrowing capacity, and at less than half the original estimate, while the resources of the city are constantly increasing.

Nature of Street Surface an Important Element in Street-Lighting Effectiveness

THE realization that the character of the light-source and the intensity of direct illumination at the street level must be supplemented by other important considerations in determining the practical effectiveness of a given street-lighting installation, has prompted study and experimentation concerning the effects of various kinds of street surface by Preston S. Millar, chairman of the street-lighting committee of the Illuminating Engineering Society and general manager of the Electrical Testing Laboratories, New York, aided by his associates. The results of these studies were presented by him before the last annual convention of the Society in a paper entitled, "Brightness of Street Surface as an Element of Effectiveness in Street-Lighting."

Referring to the specularity, or reflecting characteristics, of pavements, he says:

"A smooth, wet pavement is quite specular and in the daytime appears to the motorist to be illuminated with a uniform brightness due to reflection of the sky near the horizon. . . .

"At night, a smooth, wet pavement appears dark, except where rays of light from lamps within view are reflected toward the observer. Such a pavement is a crude mirror. In practice, however, the irregularity of pavements is so great that the reflections are distorted, and instead of perceiving an image of a street lamp, one perceives a streak of light of considerably greater width and of much greater length than would be apparent if the pavement were a plane surface.

"Most pavements are more or less (principally less) smooth. Most pavements are wet on some nights during each year. Practically all pavements, therefore, partake more or less of these specular qualities on some occasions. Most pavements in American cities, as well as those of interurban highways, are specular, even when dry. . . .

"Street surfaces which are not particularly specular in character are often rendered specular to a greater or lesser extent due to the oiling and polishing of motor traffic. . . .

"If a specular street be wide, with lamps mounted at the side over the curb, these streaks of light, for one traveling along the street are to be found near the curb, while the middle of the street appears dark. On the other hand, if the lamps are so located as to distribute many of these streaks of light along the pavement from curb to curb the whole street surface will appear fairly bright. The brightness of such a street pavement is a function of placement of lamps as well as of the amount of light delivered upon the street. . . .

EFFECT OF SIMILAR LIGHTING ON DIFFERENT STREET SURFACES

A three-way street, of which the right-hand driveway is paved with Tarvia for motor-vehicle use while that at the left of it is paved with a waterbound macadam for horse-drawn vehicles

Influence of Distant Lamps Upon Brightness of Street Pavements

"It is a characteristic of brightness of specular street surface that all of the lamps within view contribute toward establishing a condition of brightness. Each lamp delivers a streak of light in the direction of the observer, thus rendering a portion of the pavement bright and enabling it to function as a background for silhouetting. All lamps within view,

no matter how distant, cooperate to contribute their elements of brightness. For the traveler, these bright streaks or zones recede as he advances along the street, shortening and becoming wider as he approaches a lamp, and finally disappearing when he arrives so close below the lamp that the angle of reflection from the pavement no longer lies within the effective specular zone.

"The pavement brightness due to distant lamps may be as great or greater than that from nearby lamps. . . .

TWO SUBURBAN STREETS LIGHTED SOMEWHAT SIMILARLY BUT PAVED RESPECTIVELY WITH MACADAM AND ASPHALT

Design Indications

"There are a few simple and obvious corollaries of the proposition that specularity of pavements introduces special conditions in the street lighting design problem.

"If streaks of light from street lamps are well distributed over the used surfaces of the street, conditions for silhouetting are good. In this respect two rows of lamps are much better than one row. A street having two such rows with a third row over a center parkway is likely to be rather well lighted because the more numerous lamps within view provide many streaks of light on the pavement. If a street is long and straight the distant lamps are particularly effective in providing streaks of light well out toward the middle of the roadway.

"Lamps mounted over the curb are not nearly so effective in these respects as are lamps mounted somewhat out over the driveway. With the latter condition, (especially if lamps are mounted out from both sides of the street) the striature is likely to be excellent.

"The crudity of a street surface as a speculum makes each streak of light on the pavement wider and longer than it would be if the surface were a perfect plane. Each streak, however, is wider and longer if the light is reflected from a large-area source than if reflected from a small-area source. As between an unenclosed incandescent lamp and one within a large translucent globe the latter will provide larger areas of brightness which are of relatively greater effectiveness in rendering the street surface bright.

The Place of Street Surface Brightness in Street Lighting

"Discernment on the street at night is principally through perception of contrasts of brightness.

"Objects offering extreme contrasts are likely to be seen by reflection of light from their surfaces. Vertical illumination intensity in such cases is a very significant value.

"Objects which do not offer extreme contrasts may be seen by light reflected from their surfaces if the illumination intensity is relatively high.

"However, most objects do not offer extreme contrasts. Most street lighting is not of high intensity. Most objects on the street, therefore, are seen as silhouettes, against a lighted background which is usually that of the street surface. Wherever visibility is dependent upon silhouetting, pavement brightness is of major importance.

"Irregularities in the street surface are usually perceived as a matter of contrast. If the street brightness is great they appear as breaks in the continuity of the bright surface and are conspicuous.

"In a few of the most brilliantly lighted streets in America conditions approaching very closely to interior illumination have been provided. On such occasional streets objects are discerned through shade and color contrasts of their own surfaces. So much light is provided that surface details may be discerned quite generally. Objects on the street and the street itself are well illuminated. Such street lighting, however, in America, unfortunately, is exceptional. In all other street lighting street surface brightness is an important factor."

The County the Important Unit of Organization for Rural Public Library Service

WHEN facilities for library service for rural people are examined, some striking facts are found, according to Wayne C. Nason, Agricultural Economist, Division of Farm Population and Rural Life, Bureau of Agricultural Economics, Washington, in his recent study, "Rural Libraries" (Farmers Bulletin, No. 1559, United States Department of Agriculture). Mr. Nason quotes American Library Association figures which show that there are 5,954 public libraries in the 3,065 counties of the United States; but 1,135 counties have no public libraries within their borders. It is estimated that 45,069,897 people are without public library service and that 93 per cent of these are rural, living in the open spaces of the country or in places having less than 2,500 population. Eighty-two per cent of the rural population of the country is without public library service.

Various types of public libraries functioning successfully in the rural field which is covered are state extension, membership fee, municipal, school district, township, community, and county libraries. Descriptions of municipal, township, community and membership types as set forth in Mr. Nason's study have appeared in THE AMERICAN CITY.* The county library, which is of recent development, is considered the most important type of organization for rural regions. Since the establishment of the first free county libraries in Van Wert County, Ohio, and Washington County, Md., and the placing of the Cincinnati Public Library facilities on a free county-wide circulation basis in 1898, two-thirds of the states have passed laws permitting the establishment of county libraries. Two hundred and forty-five counties are now financing some sort of county service. Since the state law was passed in 1920, the people of one-third of the 21 counties of New Jersey have voted to establish county tax libraries, which are now in successful operation. Of the 58 counties in California, 46 have county libraries.

The county library is described by Mr. Nason as a central free library for the whole county with more or less extensive and changing collections of books established throughout the county in the form of branches or station libraries or school collections. Books are transported from the central library to these branches or station libraries near the people to be served or to the people direct, by book automobile, by mail, or by other modes of transportation. County libraries are reported to be now circulating not only books and periodicals but phonograph records, pictures, films, lantern slides, sheet music, stereographs and charts, globes, and supplementary school material. Among examples of county libraries, Mr. Nason describes the Sutter County Free Public Library, Yuba City, Calif.; the Monmouth County Library, Freehold, N. J.; the Cooke County Library, Gainesville, Texas; the Jackson County Library, Medford, Ore.; the Coahoma County Library, Clarksdale, Miss.; the Rusk County Library, Ladysmith, Wis.; the H. Leslie Perry Memorial Library, Henderson, N. C.; the Demonstration County Library Service, Greenville, S. C. Digests are also given of a number of other county organizations studied. The complete study may be ordered from the Government Printing Office, Washington, D. C., for 10 cents.

* "Where Community Effort in Village and Township Has Made the Library Possible"; August, 1928, pp. 104-105.

FORWARD STEPS

Reported by

Municipal Officials, Chamber of Commerce Executives, and Others

New Central Fire-Station Opened at Schenectady

SCHENECTADY, N. Y.—This city's newest municipal building, an impressive central fire-station on Erie Boulevard, was opened officially May 1.

The exterior of this three-story headquarters building is of Harvard brick with limestone trim. Five large folding doors which slide to the ceiling when opening are provided on the main floor, where the apparatus is quartered. Two entrances at either end of the building lead to the stairways. Directly under the east stairway are the striking equipment and the alarm telephones. Alarms are transmitted over the striker tape or by telephone. The fireman on duty there merely reaches over and presses switches to sound the alarm gongs throughout the building, light up the entire structure and entrances, and set the exhaust fans in operation to draw off the fumes of the motors. Imbedded in the concrete floor where the apparatus stands are special pipes to which the exhausts of the motor trucks are connected by tubing. When the trucks are started in the building, the fumes pass through the tubing into the special pipes and are drawn outside by the fans.

To the rear of the main floor are stairways leading to the basement, which is actually a ground floor from the rear entrance. Here are located the heating plant and repair shop. On a mezzanine floor at the rear of the main floor is a washing and drying room where the firemen may change immediately upon their returning from a fire, placing their wet uniforms in a gas dryer. Directly opposite is the supply and stock room.

Across the front of the building on the second floor are the offices of the chief, fire prevention division, the deputy fire marshal and assistant marshal, and a room for visiting officials. Each office is tastefully furnished with office equipment finished in dark walnut and including chairs, tables, desks and filing cases. Entrance to all these offices is by means of a corridor running across the building in the front section. A similar corridor extends across the structure in the rear. On the opposite side of the front corridor and at the ends are the two rooms for the captains, in each of which two captains are quartered. At the rear of each of these rooms are the lavatories and showers, and opening off these to the rear are the two dormitories for the men, each having accommodations for ten persons. The dormitories are separated by a corridor running lengthwise through the building and intersecting the two crosswise corridors.

Off the rear cross-corridor at the east end of the building is a recreation room for the men. Opposite this is the dining-room with a small kitchen so that the men on duty may cook and eat their meals in the buildings. The arrangement of the rooms on the third floor in relation to the corridors is similar to that on the second. Across the front center is a large room with fireplace, for the exempt men. On either side off this room are cloak-rooms. Each of the three volunteer companies has a room here, and there is a large recreation room which may be used for gymnastics and games. A dining-room and a kitchen are also available for the volunteers on the third floor.

The interior finish of the building consists of tinted plaster walls with a light tan hue predominating and a walnut trim for the woodwork. Direct lighting is provided in all rooms. Sliding-poles of brass finish over rigid steel tubing are available in nearly every room.

Contracts for the building covering the general construction work, plumbing, heating and electrical fixtures, totaled approximately $164,882. An old station on lower State Street was abandoned with the opening of the new quarters.

AUGUST G. DERRA,
Fire Chief.

NEW CENTRAL FIRE-STATION, SCHENECTADY, N. Y., SHOWING AMERICAN-LA FRANCE FIRE-FIGHTING APPARATUS

"Utility with Beauty" for the Maumee Valley

DEFIANCE, OHIO—Cities at the foot of the Great Lakes are certain to have a development in industry and population far beyond the conception of any one now living in this area, E. A. Howard, Director of Regional Planning of Milwaukee County, Wisconsin, told members of the Maumee River Scenic and Historic Highway Association in a meeting here May 24. Director Howard showed stereopticon slides illustrating how Westchester County, New York, and the Park Commissions of Baltimore, Milwaukee, Des Moines and other cities have preserved natural beauties against the encroachments of growing populations, and urged that similar methods be employed along the Maumee River, the largest stream emptying into the Great Lakes.

"Utility with beauty" was the objective stressed. Mr. Howard said that the utility of any river lies in the opportunity it affords for highways along both banks, for transportation, for recreation and for disposal of storm waters. This utility can be enhanced both here and along every river in America, he pointed out, by preventing the desecration of banks, keeping the water clean and healthful through elimination of pollution, preserving the natural beauties along the stream as an inspiration to present and future generations. He strongly endorsed the Maumee Highway Association's purpose to enlist state aid in curbing the erection of signs, unsightly shacks and "hot dog kennels" along the river highway.

Five thousand members is the goal of

the Association, with more than 1,000 already pledged at a 50-cent annual fee. Representatives of Lucas, Wood, Henry and Defiance Counties are included in the organization, which is to be extended into Paulding County, Ohio, and Allen County, Indiana. The officers are: W. A. Ritter, Napoleon, President; Virgil Squire, Defiance, Vice-President; George J. Monger, Perrysburg, Treasurer; and J. Otis Garber, Toledo, Secretary. The purposes of the organization are stated in the constitution as follows:

1. To secure attractive highways along both sides of the Maumee River.

2. To secure, preserve and mark the historical spots in the Maumee Valley district.

3. To preserve and enhance the natural beauty of the Maumee Valley.

4. To encourage the establishment of state, county and municipal parks along the river and highway.

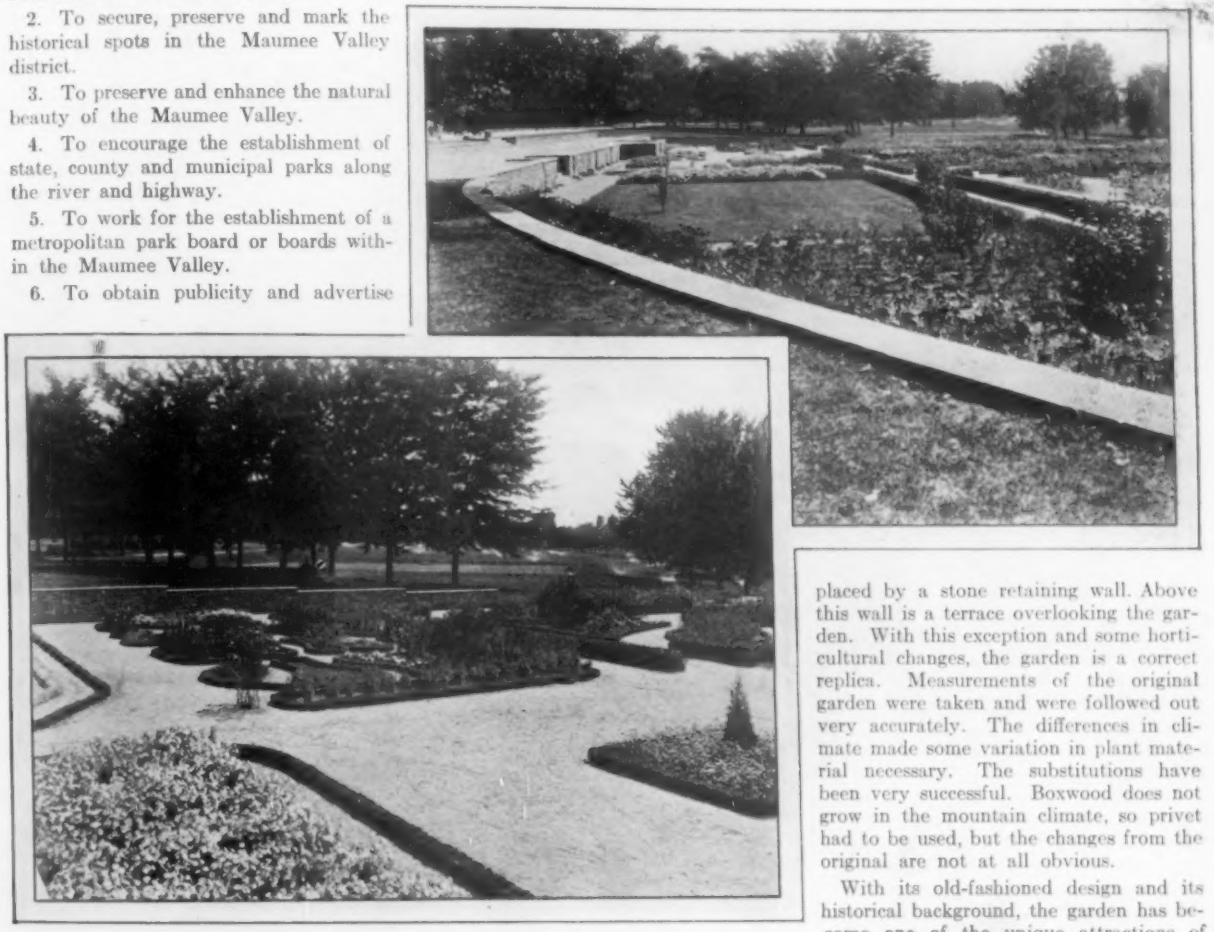
5. To work for the establishment of a metropolitan park board or boards within the Maumee Valley.

6. To obtain publicity and advertise the historical features and the scenic beauty of the Maumee Valley.

U. S. Highway No. 24 now follows the Maumee River between Toledo and Fort Wayne, crossing at Grand Rapids, Napoleon and Defiance. It is hoped by officers of the Association that development of highways along both sides of the river may result ultimately in alternate No. 24 routes along both banks.

The topography of northwestern Ohio is flat, giving the bluffs and high elevations along the wide expanse of the Maumee River greater distinction by reason of the contrast. The Maumee Valley has had historical importance since 1794, when General Mad Anthony Wayne fought his successful campaign that resulted in the defeat of the Indians and saving for the Union a territory now embracing five states that was then under British domination. Wayne's winter headquarters were at Fort Defiance, from which he advanced to a decisive battle at Fallen Timbers, near Toledo. Birthplaces of a number of notable Indian chieftains, the site of the reputed largest apple tree in the world, planted by Johnny Appleseed, Fort Winchester, established by General Harrison in 1812, and other points of historic interest, are to be preserved by the Association.

RALPH W. PETERS.



DENVER'S MOUNT VERNON GARDEN

A Mount Vernon Garden More Than 1,500 Miles from Mount Vernon

DENVER, COLO.—Situated as the city is, more than 1,500 miles from the National Capital, many of the citizens of Denver never get an opportunity to visit Washington and still less to see the home of the Republic's first President. It was a happy idea, therefore, for Denver to plan a replica of the flower-garden at Mount Vernon. Like many other cities, Denver has a park, a street, a whatnot, named after George Washington. None of these, however, carries the friendly charm that goes with the Martha Washington Garden.

The type of garden design used in those colonial days is not much in vogue today. There is no grass in the garden. It consists of gravel paths and hedge-bordered flower-beds. The flower-beds are of fantastic design and all surrounded by low trimmed hedges of boxwood. The main paths are lined with higher hedges trimmed square. Old-fashioned flowers fill the beds.

The original garden is bordered on one side by a greenhouse and barns. No such location was available in Denver. The garden was placed below the level of the rest of the park, and the building line replaced by a stone retaining wall. Above this wall is a terrace overlooking the garden. With this exception and some horticultural changes, the garden is a correct replica. Measurements of the original garden were taken and were followed out very accurately. The differences in climate made some variation in plant material necessary. The substitutions have been very successful. Boxwood does not grow in the mountain climate, so privet had to be used, but the changes from the original are not at all obvious.

With its old-fashioned design and its historical background, the garden has become one of the unique attractions of Denver. In both winter and summer the design is beautiful. There could hardly be anywhere a more charming monument to the first President and his lady.

S. R. DEBOER.

Three Months' Experience with No Parking on Two Streets

BALTIMORE, MD.—The ordinance restricting parking on Fayette and Lexington Streets, adopted by the city of Baltimore on May 14 last, has had three months' trial, with excellent results.

On Fayette Street there are two streetcar tracks for the ten blocks from Holiday Street to Greene Street, through the business center, and during the early morning and afternoon rush hours the use of these tracks by the Electric Railway Co. is particularly heavy. Before

"RADIO WAGON" USED BY ESSEX COUNTY PARK COMMISSION TO AMPLIFY PARK PROGRAMS IN NEWARK, N. J.

the passage of the ordinance two-hour parking was permitted on both sides of Fayette Street throughout the ten blocks except between 7:30 and 9:00 A. M. and 4:30 and 6:00 P. M. The ordinance prohibits parking between 7:30 A. M. and 6:00 P. M. except for loading and unloading merchandise and passengers.

Lexington Street is a one-way street for the six blocks from St. Paul to Howard Street, and there is a single car-track, west-bound, for the five blocks from Charles to Howard Street. On the south side of these five blocks, prior to the ordinance, parking was permitted between 7:30 and 9:00 A. M. and between 4:30 and 6:00 P. M., with two-hour parking between 9:00 A. M. and 4:30 P. M. Parking is now prohibited on Lexington Street between Charles and Liberty Streets during all hours, and between 7:30 A. M. and 6:00 P. M. from Holiday to Charles Street and from Liberty to Howard Street.

Before the ban, free wheel traffic moved at the rate of 6.18 miles per hour along Fayette Street between Holiday and Greene Streets from 3:00 to 6:00 P. M. on week-days. The adoption of the ordinance increased the speed to 8.45 miles per hour, or 36.7 per cent, thus effecting a time saving of 26.9 per cent.

On Lexington Street 3.2 per cent more vehicles are using the street than prior to the ban; on Fayette Street the volume of vehicular traffic increased 7.4 per cent during the 12-hour period from 7:00 A. M. to 7:00 P. M.

Before the enforcement of the ordinance, street cars traversed Fayette Street between Howard and Holiday Streets at an average speed of 5.11 miles per hour during the afternoon rush period. Immediately following enforcement, the speed was increased to 5.73 miles per hour from 4:30 P. M. to 6:00 P. M., an increase of 12.13 per cent in speed and a decrease of 10.82 per cent in time.

Counts were made of individuals entering fifteen representative establishments on Fayette Street between 9:00 A. M. to 6:00 P. M. for a whole business week before, and for two weeks after, the parking prohibition, regardless of weather conditions. The counts beginning ten days after the ordinance was put into effect showed an average increase of 25 per cent in store patronage.

So far, little or no unfavorable criticism has been made of the effects of the ordinance. It has opened up for the use of free wheel traffic a through street running from the eastern city limits to the western city limits, and the amount of time saving can hardly be estimated. The clearing of these streets has not only produced the speeding-up of the movement of vehicles, but has also helped greatly the movement of traffic through parallel streets by drawing from them vehicles that are moving through the congested section, and has thus relieved adjacent streets. The effect has also been to restore to full use the width of the highway, for which it was intended.

The City Council has before it a proposition to prohibit parking on several other streets in the business section.

CHARLES D. GAITHER,
Police Commissioner.

The Radio Wagon Amplifies and Broadcasts Programs in Parks

NEWARK, N. J.—The radio wagon here illustrated is now in use by the Essex County Park Commission, and is believed to be the first amplification outfit of its kind to be perfected. It is equipped with radio receivers, a phonograph pick-up of the theater type, and amplifiers capable of transmitting sound to as many as thirty units, or horns four to seven feet long. It made its first official appearance at the Weequahic Park on Memorial Day at the matinee races of the Road Horse Association of New Jersey, where it added greatly to the enjoyment of 20,000 people, enabling them to hear with ease all the announcements of the starters and the judges as well as the band music.

I did not realize when I started in some time ago to perfect this idea that amplifying and distributing the speaking voice and music throughout a large park area would add so much to the enjoyment and pleasure of visitors. On the day in question, several thousand automobiles were parked around the half-mile track. With the aid of glasses, those on the opposite side of the track saw distinctly the starts and finishes, and the amplifiers furnished information concerning the drivers and the events. The interest was so keen that long after the last race was over, the announcer had to tell the people the program was ended.

The band music was greatly enjoyed by all. The appreciation of the large crowd was shown at the conclusion of each piece by the honking of the horns of automobiles parked around the track. And people on the distant hills could be seen waving and clapping, though they were so far away that we could not hear their applause.

The amplification system can be shifted quickly from one park to another and we expect to keep it in active use throughout the park system during the summer. I feel enthusiastic over the possibilities for summer concerts at Branch Brook Park. In the past these have left much to be desired. The trees, one of the park's outstanding attractions, have limited the sound range. By the use of horns concealed in the trees and elsewhere, the amplification system will enable persons sitting in their parked cars along the drive, or on the grass, to enjoy the music in its full tonal value.

The operator in the truck can turn the dials of a radio and send forth whatever program is tuned in. By turning a switch, he can broadcast the voice of the announcer of races and other sports events, or of a speaker in the case of special programs. Or, he can put a record on the talking-movie type of phonograph in the truck and send that music out over the system. The latter arrangement is expected to work out particularly well in the case of children's concerts such as have been held in various parks in the past, the children bringing their own records. These concerts will be increased in number with the new wagon in use, and children will hear their records with a volume they never realized was possible.

DAVID I. KELLY,
Secretary, Essex County Park Commission.

New Warning Signs at Safety Zones in Detroit

DETROIT, MICH.—Several months ago, the Detroit Police Department made use of a neon red skull and crossbones* as a means of calling to the attention of the driving public that the protected type safety zones might be a distinct accident hazard if the motorists did not use care in running around vehicles operating on streets where such zones were installed.

As a substitute for the skull and cross-

* See THE AMERICAN CITY for April, page 145.

bones, there have been installed at the zones outbound at Jefferson and Seyburn, outbound at Jefferson and Garland, and outbound at Grand River and Mark Twain, rectangular red Neon signs. At night, these signs are visible for several blocks.

The Department has also, in an attempt to increase the night visibility of the safety zone, equipped with flashers some of the amber lights at the top of the zone posts. The rest of the flashers are being installed as rapidly as possible.

H. M. GOULD,
Consulting Traffic Engineer, Detroit Police Department.

DETROIT USES NEW RED NEON SIGN FOR SAFETY ZONES

Huge Civic Auditorium Opened at Atlantic City

ATLANTIC CITY, N. J.—What is believed to be the largest civic auditorium and convention hall in the world was opened here formally on May 31 in conjunction with a three-day dedication program in which Vice-President Charles H. Curtis and Sir Esme Howard, British Ambassador to the United States, were the principal participants. The 75th anniversary of the establishment of Atlantic City also was celebrated at that time.

Built by the city at a cost of approximately $10,000,000 and operated by the municipality with the aid of a citizens' commission, the auditorium is suitable for any type of convention or industrial exhibit, athletic contests, pageants, or other forms of gatherings. It is located on the boardwalk between Georgia and Mississippi Avenues and occupies an entire city block, running back to Pacific Avenue. It is 350 feet wide by 650 feet deep, with a total seating capacity of 66,000 persons, 40,000 of these to be seated in the main auditorium.

There are 168,000 square feet of exhibition space on the main auditorium floor, seats there being removable, and 100,000 square feet of space on the ground, or street, floor. Other facilities include a large stage 110 feet wide, 85 feet deep and 165 feet between the wings; a ballroom which is 130 by 185 feet; probably the largest pipe organ in the world; an ice skating-rink, 90 by 200 feet; and many smaller meeting rooms.

The front of the building, facing the boardwalk, is finished in marble and limestone, an adaptation of the Romanesque period. The interior of the main chamber is finished in a dull silver. Along the entire boardwalk front of the structure is an arcade containing 14 stores, faced with marble and ornamental bronze enframements. Two spacious bath-houses, occupying sites 60 by 150 feet, are on the ground level at the front of the auditorium. The boardwalk entrance lobby is a vaulted passage, 50 feet wide and about 125 feet long, passing directly into the main auditorium. Walls of the lobby are of limestone, the ceiling of Gustavino tile, and the floor of two-tone terrazzo. Corridors lead from the lobby to the ramps running to the upper and lower levels of the auditorium. Parking space for 400 automobiles is available in the building.

There are no columns in the main auditorium to obstruct the view, and the balconies, projecting out 38 feet around the sides, are 15 feet above the floor level. Special lighting, sound, heating and ventilating facilities have been installed. Both passenger and freight elevator service is available for conventions and industrial expositions.

FRANK J. HARNETT,
Director of Publicity.

LOOKING DOWN ON THE $10,000,000 CIVIC AUDITORIUM AND CONVENTION HALL AT ATLANTIC CITY, N. J.
This has a total seating capacity of 66,000, the main auditorium alone accommodating 40,000. It can be utilized for practically any type of gathering and embraces 268,000 square feet of exhibition space. The American Road Builders' Association meets in it next January.

"Tschanen's Mudhole" Becomes a Popular Park

By PHILIP VON BLON

MANAGING EDITOR, *The American Legion Monthly*

EDWARD BOK, in his autobiography, tells the story of his grandfather, idealist and dreamer, who planted trees on a barren island off the coast of Holland, confident that birds would seek it as a sanctuary. One can imagine the mockery of the islanders as they looked on, not too tolerantly, while the visionary Mr. Bok of three-quarters of a century ago inspected his seedlings and saplings and indulged in hopes and prophecies of the days when the birds would come. The birds did come when the trees grew up, the present-day Mr. Bok relates. They came in flocks to the island where birds had never come before, migratory birds with wings tired by battles against winds and rain. By that time, of course, everyone had forgotten the cynical amusement of the seedling and sapling days.

Luckily, in every community, whether it be in Holland, Senegambia or Ohio, there is always at least one citizen who combines the qualities of a dreamer and prophet with practicality and zeal for public service—a man who is content to go through lonesome years pursuing a community rainbow that only he can see. The United States has hundreds of parks and playgrounds which originated in the courage and initiative of forward-looking men who are willing to work alone until their visions have been communicated to their fellow citizens.

Motorists driving east and west along the Lincoln Highway through Ohio find on the eastern edge of Upper Sandusky, Ohio, a valley that is a park and a garden. The highway dips from the pleasant farming uplands lying east of Upper Sandusky, crosses a bridge over the Sandusky River, points straight across the valley floor and then coasts over a hill into the town located on a bluff above the valley. Paralleling the highway, one-half mile across the valley floor, runs the embankment of the Pennsylvania Railroad, over which speed New York and Chicago limited trains. Between the elevated highway and the railroad embankment and between the river and the steep hillside leading up to the town lies Harrison Smith Park —winding drives, giant elms, groves of lesser trees, shrubbery, flower-beds, football fields, a large swimming pool.

One finds it hard to believe that this spot fifteen years ago was nothing more than a hodge-podge of cornfields and gravel-pits, dismal in winter, undistinctive in summer. Today it is a whole county's playground. On any summer's day, hundreds of children and grown-ups splash and dive in the waters of the bathing pool, which are kept fresh always by springs in the underlying sand. On any Sunday or holiday scores of picnics are being held under the big trees or in the groves.

To-day all the community clubs join in providing support for the park. In its sightliness they recognize the park is the town's show window, pleasing to the eyes of many thousands who pass daily on the coast-to-coast motor highway and on the railroad trains. Fifteen years ago the park site was merely "Tschanen's mudhole."

"Tschanen's mudhole" they called it when the town's Mayor, Charles F. Tschanen, first got the idea for the park, laid out the first drives, planted the first trees and built the first levees to impound the water for the pool, after inducing Harrison Smith, one of the county's wealthy pioneers who owned most of the land, to set the tract aside for the public good. Like Mr. Bok's grandfather, Mr. Tschanen has seen his dream come true. A photographer for more than forty years, he has found in his mellow years the fine satisfaction which comes to every man in his craft when a slow-developing picture turns out to be a masterpiece.

When a former mayor of Upper Sandusky, Ohio, decided fifteen years ago to convert a frog pond into a community swimming pool, with a park surrounding it, citizens ridiculed the project and called it "Tschanen's Mudhole." Today it is a beauty-spot that is admired by thousands of strangers who see it daily from motor cars on the Lincoln Highway and the New York and Chicago trains of the Pennsylvania Railroad

Pittsburgh Increases Provisions for Small Children's Summer Play

FIFTEEN additional school playgrounds for use of children under twelve years of age are being operated by the Bureau of Recreation in Metropolitan Pittsburgh this summer, bringing the total number of junior playgrounds up to 52. While these new playgrounds for smaller children will be supervised exclusively by women, a new experiment is being tried in the employment of two men as itinerant play directors. These will go from one ground to another where their services are required, assisting the women directors in the solution of problems created by the presence of older boys for whom the school grounds offer little or no play provision. These men will attempt to interest the boys in other nearby playgrounds where appropriate facilities are provided; and, in addition to their work as play directors, they will exercise police authority on occasion.

These new summer playgrounds, according to an editorial in a recent issue of the leaflet of the Civic Club of Allegheny County, represent a long step towards establishing a proper relationship between playground provisions for Pittsburgh's small children and athletic field provisions. The city now has 29 athletic fields, of which seven are being used for the first time this season.

Cities That Borrow as Well as Buy Public Playgrounds

DETROIT, Los Angeles, Pittsburgh, Orlando, Fla., and Hamilton, Ont., are among the cities that have public playgrounds on vacant lots lent for the purpose by private individuals or corporations, according to a report by the Playground and Recreation Association of America. In return for the use of these play areas, partial or total tax exemption is granted the owners, and sometimes a nominal yearly rental is also allowed. In this way the children often have playgrounds before the cities are in a position to acquire ground for the purpose, while the owners have saved an important part of the cost of carrying vacant land.

A Survey of Water-Meter Rates in the United States—Part II

The rates here given in detail are from the original reports furnished to THE AMERICAN CITY *in connection with the water-supply statistics published in The Municipal Index for 1929. In The Municipal Index only domestic maximum and industrial minimum rates were given, together with many other statistics besides rates.*

CALIFORNIA (Continued)

Santa Paula, 8,000

Cu. Ft. per Month	Per 100 Cu. Ft.
First 700 or less	$1.00
Next 4,300	10¢
" 5,000	7¢
Over 10,000	5¢

Minimum Charge

Size of Meter	Per Month
⅝"	$ 1.00
¾"	1.50
1"	2.00
1½"	3.25
2"	5.00
3"	8.00
4"	12.00

Sierra Madre, 5,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 500 or less	$1.25
Next 500	10¢
" 1,500	7¢
Over 2,500	5¢

Minimum Charge

Size of Meter	Per Month
⅝"	$1.25
1"	1.50
1½"	1.75
1½"	2.00
2"	2.25
3"	3.25

Turlock, 5,200.

Meter Rental

Size of Meter	Per Month
⅝"	$0.50
¾"	0.75
1"	1.00
1½"	1.50
2"	2.00

Plus 20¢ per 1,000 gals.

Upland, 5,000.

Minimum, $1.25 for 700 cu. ft. 12½¢ per 100 cu. ft. for excess.

Vernon. (Industrial district, no residences.)

Cu. Ft. per Month	Per 100 Cu. Ft.
First 10,000	12¢
Next 40,000	11¢
" 50,000	9¢
Over 100,000	7¢

Minimum Charges

Size of Meter	Per Month
1"	$1.00
1½"	1.50
2"	2.00
3"	3.00
4"	4.00
6"	6.00
Irrigation	8.00

Whittier, 18,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 1,000 or less	$1.00
Next 1,000	8¢
" 3,000	7¢
" 5,000	6¢
Over 10,000	5¢

COLORADO

Alamosa, 6,000.

Gals. per Month	Per 1,000 Gals.
First 2,000 or less	$1.25
2,000 to 5,000	27¢
2,000 to 10,000	25¢
2,000 to 20,000	20¢
2,000 to 60,000	15¢
Over 60,000	12¢

Brighton, 3,780.

Gals. per Month	Per 1,000 Gals.
First 10,000	25¢
Next 10,000	20¢
" 10,000	15¢
Over 30,000	13¢

Minimum $1.00 per month

Colorado Springs, 40,000.

Gals. per Month	Per 1,000 Gals.	Bill
First 10,000	15¢ ($1.50)	$1.50
Next 10,000	12½¢ (1.25)	2.75
" 10,000	10¢ (1.00)	3.75
" 20,000	9¢ (1.80)	5.55
Over 50,000	8¢	

Definitions

Meter Rent.—**In some works a charge is made for the rent of meters furnished and owned by the department. Where such a charge is made, it is in reality a service charge and it must be so classified. The service charge as now used ordinarily covers meter rent and much more, so that the meter rent represents only a fraction of the amount of what may be considered the normal service charge. Cases may be found where meter rents are used in connection with a minimum rate, but with this minor exception the service charge is not used in connection with a minimum rate.**

Minimum Rate.—**A minimum rate is an amount that is collected in any event, even though the price of the quantity of water registered by the meter does not amount to it.**

Service Charge.—**A service charge is a charge for the service, which is in addition to the amount that is charged for water.**

Modified Service Charge.—**Under this form there is a minimum charge for a certain quantity of water, and the amount of the minimum is made up of what would otherwise be the service charge and the meter rate for that quantity of water that is furnished for the minimum charge.**

Uniform Rate.—**A rate per thousand gallons or per hundred cubic feet that is charged uniformly for all quantities of water sold.**

Jump Scale.—**The quantities of water up to a certain limit are charged at a certain price; beyond that limit and inside another limit another and lower price is made, and beyond that there is another limit and another price, and so on. In some cases, two prices only are used; in others three, four or more, up to a dozen or twenty; and, in fact, divisions may be so numerous that the scale practically becomes a table which gives the water rate for every quantity of water that a meter records.**

Modified Jump Scale.—**Under this arrangement each step in the jump scale is subdivided into two parts, the second of which comprises all those quantities for which it would be possible to get a lower rate by drawing more water. For these quantities a lump sum collection is made, which sum is the minimum that could be obtained under the next step. For the first part of each step the rate remains as with the jump schedule.**

Sliding Scale.—**Under this arrangement the water first drawn up to a certain limit is charged at a certain rate. Additional quantities are charged at a lower rate, but the higher charge on the first quantity remains as part of the bill in all cases.**

—From "Meter Rates for Water Works," by Allen Hazen, published by John Wiley & Sons, Inc., New York.

Fort Collins, 14,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	20¢
Next 40,000	15¢
" 50,000	10¢
" 400,000	8¢
" 500,000	7¢
Over 1,000,000	6¢

Minimum Charges

Size of Meter	Per Month
⅝"	$ 1.00
¾"	1.50
1"	2.00
1½"	3.00
2"	4.50
3"	6.00
4"	9.00
6"	15.00
Larger	25.00

Greeley, 16,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	20¢
Next 40,000	15¢
" 50,000	10¢
" 400,000	8¢
" 500,000	7¢
Over 1,000,000	6¢

Minimum, $1.50 per month.

Gunnison, 2,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	32¢
Next 5,000	30¢
" 10,000	26¢
" 10,000	24¢
" 10,000	22¢
" 10,000	20¢
" 50,000	18¢
" 100,000	15¢
Over 200,000	12¢

Minimum, $1.50 per month.

Littleton, 2,000.

Cubic Feet per Quarter	Bill
Less than 266	$1.50
266 to 400	1.75
400 to 533	2.00
533 to 666	2.25
666 to 800	2.45
800 to 933	2.65
933 to 1,066	2.85
1,066 to 1,200	3.00
1,200 to 1,333	3.15
1,333 to 1,466	3.30
1,466 to 1,600	3.45
1,600	3.45
Plus 10¢ per 100 cu. ft. up to 3,000	
3,000	4.85
Plus 8¢ per 100 cu. ft. up to 5,000	
5,000	6.45
Plus 7¢ per 100 cu. ft. up to 10,000	
10,000	10.00
Plus 6¢ per 100 cu. ft. in excess	

Steamboat Springs, 1,500.

Gals. per Month	Per 1,000 Gals.
1,000 to 15,000	17¢
15,000 to 30,000	16¢
30,000 to 60,000	15¢
60,000 to 150,000	13¢
150,000 to 315,000	12¢
315,000 to 637,500	11¢
637,500 to 1,500,000	10¢

Minimum, $4.00 per month.

CONNECTICUT

Ansonia, 18,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 10,000	14½¢
Next 30,000	12¢
" 60,000	12¢
" 150,000	9¢
Over 250,000	6½¢

Fixed Service Charges

Size of Meter	Per Quarter
⅝"	$1.05
¾"	2.25
1"	5.40
1½"	13.50
2"	18.00
3"	43.50
4"	63.00
6"	118.50
8"	190.50
10"	216.00

Bridgeport, 170,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 20,000	15¢
Next 40,000	12¢
" 60,000	9¢
Over 120,000	6¢

Fixed Service Charges

Size of Meter	Per Quarter
⅝"	$1.50
¾"	2.50
1"	5.50
1½"	13.50
2"	18.00
3"	23.00
4"	30.00
6"	60.00
8"	90.00
10"	110.00
12"	160.00
16"	230.00

When supplied through one common meter, the charge for the first family, store or other premise, not including factories, shall be determined by the size of the meter and the charge for each additional family, store or premise shall be $1.50 per quarter,

CONNECTICUT (Continued)

Bristol, 27,500.

Cu. Ft. per Quarter	Per 100 Cu. Ft.	Total Bill
First 10,000	18¢	$18.00
Next 10,000	15¢	33.00
" 10,000	13¢	46.00
" 20,000	11¢	68.00
" 50,000	10¢	118.00
Over 100,000	9¢	

Chester, 3,000.

Gals. per Quarter	
First 4,000 (Minimum)	$4.00
	Per 1,000 Gals.
Next 4,000	40¢
" 10,000	30¢
" 5,000	25¢
" 5,000	20¢
Over	15¢

When two or more families are served from one meter the minimum charge for each family is $3.00.

Collinsville, 3,000.

Gals. per Day	Per 1,000 Gals.
100 or less	40¢
100 to 500	30¢
500 to 1,000	20¢

Danielson, 5,000.

Gals. per Day	Per 1,000 Gals.
Less than 1,000	33⅓¢
1,000 to 5,000	26⅔¢
5,000 to 10,000	20¢
10,000 to 20,000	16⅔¢
Over 20,000	13⅓¢

Meter Rental

Size of Meter	Per Quarter
½ or ⅝"	No charge
¾"	$1.00
1"	1.33
1½"	2.67
2"	4.00
3"	6.67
4"	13.33
6"	26.67

Derby, 12,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 3,500	14½¢
Next 30,000	12¢
" 50,000	9¢
Over 83,500	6½¢

Fixed Service Charge

Size of Meter	Per Month
½ or ⅝"	$0.35
¾"	0.75
1"	1.80
1½"	4.50
2"	6.00
3"	14.50
4"	21.00
6"	39.50
8"	63.50
10"	72.00

Greenwich, 26,000.

Cu. Ft. per Quarter	
First 700 (minimum)	$3.00
	Per 100 Cu. Ft.
Next 3,300	30¢
" 6,800	22¢
" 89,200	16¢
Over 100,000	Special contract

Guilford, approx. 7,000.

Gals. per Quarter	
First 8,000(minimum)	$8.00
	Per 1,000 Gals.
Next 2,025	30¢
" 5,025	25¢
" 5,025	20¢
" 9,975	15¢
Over 30,050	10¢

Hartford, 204,000.

Cu. Ft. per Day	Per 100 Cu. Ft.
First 3,000	15¢
Over 3,000	7½¢

Minimum Charge

Size of Meter	Per Year
⅝"	$6.00
¾"	7.50
1"	10.50
1½"	18.00
2"	30.00
3"	60.00
4"	90.00
6"	180.00

Killingly, 5,000.

Gals. per Day	Per 1,000 Gals.
Less than 1,000	33⅓¢
1,000 to 5,000	26⅔¢
5,000 to 10,000	20¢
10,000 to 20,000	16⅔¢
Over 20,000	13⅓¢

Meter Rentals

Size of Meter	Per Quarter
½ or ⅝"	No charge
¾"	$1.00
1"	1.33
1½"	2.67
2"	4.00
3"	6.67
4"	13.33
6"	26.67

Middletown, 18,000.

Cu. Ft. per 6 Months	Per 100 Cu. Ft.
First 20,000	12¢
20,000 to 150,000	8½¢
Over 150,000	5¢

Minimum Charges

Size of Meter	Per Six Months
⅝"	$ 2.50
¾"	3.75
1"	5.25
1½"	9.00
2"	15.00
3"	30.00
4"	45.00
6"	90.00

New Haven, 250,000.

Gals. per Day	Per 1,000 Gals.
1,000 or less	18¢
1,000 to 3,000	14¢
Over 3,000	10¢

Minimum charge, $2.00 per quarter.

Plainville, 5,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.	Total Bill
First 10,000	32¢	$32.00
Next 10,000	27¢	59.00
" 10,000	20¢	79.00
Over 30,000	15¢	

Minimum charge, $4.00 per quarter, allowing 1,250 cu. ft.
No meter rental on ⅝" meters.
Annual rental of larger meters, 10% of cost

Putnam, 7,711.

Gals. per Day	Per 1,000 Gals.
1,000 or less	20¢
1,000 to 5,000	16¢
5,000 to 10,000	14¢
10,000 to 20,000	12¢
Over 20,000	10¢

Minimum charges

Size of Meter	Per Year
⅝" or less	$10.00
1"	12.00
1½"	15.00
2"	20.00

Southington, 5,085.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 5,000	22¢
Next 10,000	12¢
" 85,000	8½¢
Over 100,000	6¢

Minimum for water only, $2.50 per quarter.

Meter Rental

Size of Meter	Per Quarter
⅝"	$0.50
¾"	0.70
1"	0.90
1¼"	1.20
1½"	1.50
2"	2.50
3"	5.00
4"	10.00

2½% discount if paid within 15 days from date of bill.

South Manchester, 14,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 10,000	25¢
Next 90,000	17½¢
Over 100,000	10¢

Minimum Charges

For each service connection and ⅝" meter in domestic and commercial consumption:

	Per Quarter
First fixture used by one family, store, office or similar service	$2.50
Each additional family, store, office or similar service	1.25
Each first water-closet fixture for each family, store, office or similar service	0.75
Each first bath fixture for each family or similar service	0.50
Each additional fixture for each family, store, office or similar service	0.25

For services requiring larger connections and meters, the minimum charges will be proportionately greater.

Stamford, 45,000.

Minimum Charges

Size of Meter	Per Quarter	Allowance Cu. Ft.
⅝"	$3.00	1,200
¾"	4.50	1,800
1"	6.00	2,500
1½"	12.00	5,000
2"	18.00	7,500
3"	31.00	8,700
4"	27.00	11,200
6"	39.00	16,800

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
Next 13,800	$2.40
" 30,000	1.60
" 60,000	1.20
Over 105,000	0.90

Terryville, 2,400.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 5,000	35¢
Next 20,000	25¢
" 25,000	20¢
" 50,000	15¢
Over 100,000	10¢

Rates for service supplied during dry season, June 1 to December 1 only, will be one and one-half regular rates above.

Minimum meter rate per quarter for domestic services will be 90% of flat fixture rates for fixtures supplied.

Thompsonville, 12,000.

Industrial Rate

Gals. per Month	Per 1,000 Gals.
First 25,000	30¢
Next 50,000	20¢
Over 75,000	9¢

Minimum Charge

Size of Meter	Per Month
¾"	$1.50
1"	1.75
1½"	2.25
2"	3.00
3"	5.00
4"	9.00
6"	18.00

One meter will be furnished and maintained by the company for each service. If owner of property desires additional meters, they will be installed by the company and the following charges made for reading and maintaining such meters:

	Per Year, Payable Quarterly
¾"	$2.00
⅞"	3.00
1"	4.00

Rates for larger meters on application.

Domestic and Commercial Use

Gals. per Quarter	Per 1,000 Gals.
First 40,000	33¢
Next 160,000	25¢
Over 200,000	15¢

Minimum Rates

Size of Meter	Per Quarter
⅝"	$3.50
¾"	4.25
1"	5.50
1½"	6.75
2"	8.00

Torrington, 22,000.

Cu. Ft. per Quarter	
Less than 1,200 (Minimum)	$2.50
	Per 100 Cu. Ft.
1,200 to 2,399	21¢
2,400 to 3,599	19½¢
3,600 to 4,799	18¢
4,800 to 5,999	16½¢
6,000 to 7,199	15¢
7,200 to 8,399	14¼¢
8,400 to 9,599	13½¢
9,600 to 10,799	12¾¢
10,800 to 11,999	12¢
12,000 to 17,999	11¼¢
18,000 to 29,999	10½¢
30,000 to 47,999	9¾¢
48,000 to 71,999	9¢
72,000 to 119,999	8¼¢
120,000 to 179,999	7½¢
180,000 to 239,999	6¾¢
240,000 to 359,999	6¢
360,000 to 599,999	5¼¢
600,000 to 899,999	4½¢
900,000	3¼¢

Wallingford, 12,718.

Cu. Ft. per Six Months	Per 100 Cu. Ft.	Total Bill
First 4,000	20¢	$8.00
Next 11,000	14¢	23.40
" 45,000	11¢	72.90
" 140,000	8¢	184.90
" 100,000	7¢	254.90
" 200,000	6¢	364.90
Over 500,000	5¢	

Minimum Charges

Size of Meter	Per Six Months
⅝"	$5.50
¾"	7.50
1"	10.00
1½"	15.00
2"	30.00
3"	60.00

Waterbury, 115,000.

15½¢ per 100 cu. ft.

Minimum Charges

Size of Meter	Per Year
⅝"	$10.00
¾"	12.00
1"	16.00
Over 1"	20.00

Willimantic, 14,000.

Cu. Ft. per Quarter		Per 100 Cu. Ft.
10 to 800 inclu.		$2.00
800 to 2,590	"	25¢
2,590 to 2,700	"	6.48
2,700 to 3,830		24¢
3,830 to 3,990	"	9.19
4,000 to 5,640		23¢
5,640 to 5,890	"	12.97
5,900 to 8,400		22¢
8,400 to 8,800	"	18.48
8,800 to 12,370		21¢
12,370 to 12,990	"	25.98
13,000 to 18,040		20¢
18,040 to 19,000	"	36.10
19,000 to 28,600		19¢
28,600 to 42,000		18¢
42,000 to 62,000		17¢
62,000 to 92,000		16¢
92,000 to 136,000		15¢
136,000 to 201,600		14¢
201,600 to 298,400		13¢
298,400 to 460,000		12¢
460,000 to 640,000		11¢

CONNECTICUT (Continued)

Winchester, 10,000.

Cu. Ft. per Six Months	Per 100 Cu. Ft.
First 5,000	6¢
Next 5,000	5½¢
" 5,000	5¢
" 5,000	4½¢
Over 20,000	4¢

Minimum, $5.00 per year.

DELAWARE

Wilmington, 130,000.

Cu. Ft. per Quarter	Per 1,000 Cu. Ft.
First 2,000	75¢
Next 3,000	60¢
Over 5,000	55¢

Minimum Charges

Size of Meter	Per Quarter
⅝"	$10.00
¾"	15.00
1"	20.00
1½"	30.00
2"	40.00
3"	50.00
4"	60.00
5"	70.00
6"	80.00

DISTRICT OF COLUMBIA

Washington, 540,000.

Gals.	Per 1,000 Gals.
First 56,100	11.34¢
Over	8¢

FLORIDA

Bradenton, 8,000.

Gals. per Month	
First 2,000 (minimum)	$1.00
	Per 1,000 Gals.
2,000 to 10,000	25¢
10,000 to 20,000	20¢
Over 20,000	15¢

Lawn rate: 10¢ per 1,000 gallons for all over 6,000 gallons.

Coral Gables, 8,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 3,000	16¢
3,200 to 12,000	15¢
13,900 to 30,000	13¢
35,500 to 60,000	11¢
66,000 to 75,000	10¢
All over 93,800	8¢

Minimum, $1.00 per month.
Deposit for ⅝" meter, $3.00.
When the consumption falls at the change of rate, the bill will be the maximum amount at the higher rate for instance:
3,100 gals. at 16¢ $4.96, billed at $4.80.

Dade City, 3,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	50¢
5,000 to 10,000	40¢
10,000 to 50,000	30¢
Over 50,000	20¢

Minimum, $1 50 per month.

Eustis, 5,000.

Cu. Ft. per Year	Per 1,000 Cu. Ft.
First 1,000	$2.50
Next 1,000	2.00
" 3,000	1.50
Over 5,000	1.25

Minimum charge, $1.50 per month.

Fort Myers, 18,000.

Gals. per Month	
3,000 (minimum)	$1.25
	Per 1,000 Gals.
3,000 to 10,000	25¢
Over 10,000	20¢

Gainesville, 14,000

Gals. per Quarter	
15,000 (minimum)	$3.00
	Per 1,000 Gals.
Next 15,000	15¢
Over 30,000	12½¢

For offices or houses of three rooms or less, the minimum charge is $1.50 per quarter for 7,000 gallons or less. Over 7,000 gallons at regular rate.

Jacksonville, 147,000.

Minimum Charges

Value of Residence	Per Year	Allowance per Quarter
Over $600	$12.00	3,700
Under 600	8.00	2,500
" 400	6.00	1,850

Excess at:

Cu. Ft. per Day	Per 100 Cu. Ft.
Under 200	8¢
200 to 500	7¢
500 to 800	6¢
800 to 1,000	5¢
Over 1,000	4¢

Lakeland, 25,000.

Gals. per Month	
First 3,000 (minimum)	$1.00
	Per 1,000 Gals.
3,000 to 75,000	18¢
75,000 to 100,000	15¢
Over 100,000	12¢

Live Oak, 4,000.

Gals. per Month	
First 3,000 (minimum)	$1.00
	Per 1,000 Gals.
3,000 to 50,000	15¢
Over 50,000	10¢

Melbourne, 2,000.

Gals. per Month	Per 1,000 Gals.
First 20,000	25¢
20,000 to 40,000	22½¢
Over 40,000	20¢

Service Charge

Size of Meter	Per Month
¾"	$0.25
¾"	0.75
1"	1.50
1½"	3.50
2"	6.00
3"	14.00
4"	24.00
6"	54.00
8"	96.00

The monthly charge, including ready to serve charge and water used, shall not in any case be less than $1.25.

Miami, 120,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
100 to 3,000	16¢
3,200 to 12,000	15¢
13,900 to 30,000	13¢
35,500 to 60,000	11¢
66,000 to 75,000	10¢
Over 93,800	8¢

Minimum, $1.00 per month.
Intermediate consumption not covered by the above steps will be billed at amounts not exceeding the maximum bill under the next higher rate.

Mount Dora, 3,500.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 8,000	25¢
Over 8,000	20¢
Short time rate	32¢

Minimum, $4.50 per quarter.

Orlando, 30,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	25¢
Next 40,000	20¢
" 50,000	15¢
Over 100,000	10¢

Plus 10 per cent if not paid within 10 days from date of bill.
Minimum, $1.00 per month.

Palm Beach and West Palm Beach, 40,000.

Service Charges

Size of Meter	Per Year
⅝"	$9.00
¾"	15.00
1"	20.00
1½"	40.00
2"	65.00
3"	125.00
4"	190.00
6"	375.00
8"	625.00

Plus 21¢ per 100 cubic feet for all water used.

Perry, 2,500.

Gals. per Month	Per 1,000 Gals.
First 5,000	20¢
Next 20,000	15¢
Over 25,000	10¢

Minimum, $1.00 per month.

Plant City, 7,500.

Gals. per Month	
First 4,000 (minimum)	$1.25
	Per 1,000 Gals.
4,000 to 15,000	28¢
15,000 to 30,000	26¢
30,000 to 50,000	23¢
50,000 to 75,000	20¢
Over 75,000	18¢

Quincy, 5,000.

Gals. per Month	Per 1,000 Gals.
First 5,000	50¢
Next 5,000	40¢
" 5,000	30¢
Over 15,000	20¢

Minimum, $1.00 per month.

St. Augustine, 12,000.

Gals. per Month	
First 5,000	$1.00
	Per 1,000 Gals.
5,000 to 12,000	20¢
12,000 to 35,000	18¢
35,000 to 100,000	16¢
100,000 to 170,000	14¢
Over 170,000	

Tampa, 125,000.

Cu. Ft. per Month	Per 100 Cu. Ft	Total Bill
First 5,000	17¢	$8.50
Next 5,000	14¢	15.50
" 10,000	13¢	28.50
" 10,000	12¢	40.50
" 10,000	11¢	51.50
" 10,000	10¢	61.50
Over 50,000	9¢	

Minimum Charges

Size of Meter	Per Month	Allowance Cu. Ft.
⅝"	$1.25	700
1"	2.00	1,100
1½"	3.00	1,700
2"	4.00	2,300
3"	6.00	3,500
4"	8.00	4,700
6"	12.00	7,500
8"	16.00	10,300
10"	20.00	13,400

Tavares, 2,000.

Cu. Ft. per Month	Per 1,000 Cu. Ft.
First 1,000	$2.50
Next 1,000	2.00
" 3,000	1.50
Over 5,000	1.25

Minimum, $1.50 per month.

Titusville

Gals. per Month	Total Bill
3,000 (minimum)	$1.50
4,000	1.90
5,000	2.30
6,000	2.60
7,000	2.90
8,000	3.20
9,000	3.50
10,000	3.80
Per 1,000 Gals.	
Next 10,000 20¢	5.80
Over 20,000 15¢	

Vero Beach, 3,500.

Gals. per Quarter	Per 1,000 Gals.
First 20,000	25¢
Next 20,000	22½¢
Over 40,000	20¢

Minimum, $3.00 per quarter.

GEORGIA

Albany, 18,000.

Gals. per Month	Per 1,000 Gals.
First 30,000	20¢
Over 30,000	10¢

Atlanta, 300,000.

Cu. Ft. per Month	Gross	Net
First 800 (minimum)	$1.25	$1.00
	Per 100 Cu. Ft.	
	Gross	Net
800 to 5,000	25¢	20¢
Next 5,000	20¢	15¢
" 5,000	18¢	13¢
" 5,000	16¢	11¢
Over 20,000	14¢	9¢

Augusta, 56,000.

Gals. per Day	Per 1,000 Gals.
First 1,000	25¢
Next 19,000	20¢
" 10,000	15¢
Over 30,000	12½¢

Minimum Charges

Size of Meter	Per Month
⅝"	$0.75
¾"	1.25
1"	1.50
1¼"	1.75
1½"	2.00
2"	3.00
3"	4.00
4"	5.00
6"	8.00

Baxley, 3,000.

Gals. per Month	Bill
Minimum of 5,000	$1.50
Second 5,000	1.25
Third 5,000	1.00
Fourth 5,000	.75
Above 20,000, 10¢ per 1,000 Gals.	

Calhoun, 2,500.

Gals. per Month	
First 2,000 (minimum)	$1.11
Each additional 1,000 Gals.	16.6¢

Carrollton, 4,363.

Cu. Ft. per Month	Per 100 Cu. Ft
First 2,000	33¢
Next 2,000	32¢
" 2,000	30¢
" 2,000	23¢
" 2,000	14¢
" 2,000	11¢
Over 12,000	8¢

Columbus, 45,000.

Gals. per Day	Per 1,000 Gals.
5,000 or less	15¢
5,000 to 10,000	14¢
10,000 to 15,000	12¢
15,000 to 200,000	10¢
200,000 or more	9¢

Minimum, $3.00 per quarter, allowing 20,000 gals.

Dublin, 10,000.

Gals. per Month	Per 1,000 Gals.
First 20,000	25¢
Next 20,000	20¢
" 20,000	15¢
Over 60,000	12½¢

Griffin, 12,000.

Gals. per Month	Per 1,000 Gals.
First 50,000	19¢
50,000 to 500,000	16¢
Over 500,000	14¢

GEORGIA (Continued)

Griffin (Continued)

Minimum Charges

Size of Meter	Per Month
¾"	$1.00
¾"	1.25
1"	1.50
1½"	1.75
2"	2.50
3"	4.00
4"	5.00
6"	7.00

Jesup, 2,500.

Gals. per Month	Per 1,000 Gals.
First 10,000	25¢
Next 10,000	20¢
Over 20,000	15¢

Minimum, $1.25 per month, allowing 5,000 gals.

Macon, 65,000.

Gals. per Day	Per 1,000 Gals.
3,000 or less	25¢
3,000 to 6,000	20¢
6,000 to 10,000	18¢
10,000 to 15,000	15¢
15,000 to 20,000	12¢

Minimum, 75¢ per month.

Midville, 987.

Gals. per Month	
6,000 (minimum)	$1.66
	Per 1,000 Gals.
Next 19,000	25¢
" 25,000	20¢
" 50,000	15¢
Over 100,000	10¢

Newnan, 9,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	25¢
Second 10,000	20¢
Third 10,000	15¢
Fourth 10,000	12½¢
Fifth 10,000	10¢
Second 50,000	9½¢
Second 100,000	9¢
Third 100,000	8¢
Over 300,000	10¢

Minimum, 75¢ per month for 3,000 gals.
Penalty for non-payment after the 10th of the month, 25%

Savannah, 100,000.

Cu. Ft. per Month	Per 1,000 Cu. Ft.
First 10,000	90¢
Next 10,000	83¢
" 10,000	75¢
30,000 to 100,000	60¢
Over 100,000	45¢

Minimum for all meters under 1", 90¢ per month.

Thomson, 2,500.

Gals. per Month	
First 3,000 (minimum)	$1.66
	Per 1,000 Gals.
3,000 to 5,000	50¢
5,000 to 10,000	40¢
10,000 to 20,000	30¢
20,000 to 50,000	20¢

IDAHO

Boise, 30,000.

Cu. Ft. per Month	
First 500	$1.25
	Per 100 Cu. Ft.
Next 2,500	25¢
" 7,000	20¢
Over 10,000	12½¢

Minimum Charges

Size of Meter	Per Month
¾"	$1.25
1"	2.00
1½"	3.50
2"	6.00
3"	10.00
4"	15.00
6"	30.00

Emmett, 3,000.

Gals. per Month	Per 1,000 Gals.
First 3,000	50¢
Next 3,000	45¢
" 4,000	37½¢
" 15,000	30¢
Over 25,000	22½¢

Jerome, 1,750.

Gals. per Month	
First 2,500 (minimum)	$2.50
	Per 1,000 Gals.
Next 10,000	75¢
" 10,000	60¢
" 20,000	45¢
" 20,000	35¢
" 40,000	30¢
Over 102,500	25¢

Meridian, 1,000.

Gals.	
First 3,000 (minimum)	$1.50
	Per 1,000 Gals.
3,000 to 8,000	30¢
8,000 to 13,000	25¢
13,000 and over	20¢

Pocatello, 20,000.

Gals.	
First 5,000	$1.00
	Per 1,000 Gals.
Next 45,000	10¢
" 100,000	8¢
Over 150,000	5¢

Rexburg,

Gals. per Month	Per 1,000 Gals.
First 20,000	30¢
Next 30,000	20¢
" 50,000	14¢
" 100,000	11¢
Over 200,000	8¢

Minimum, $1.10 per month.

Shelley, 1,600.

Gals. per Month	Per 1,000 Gals.
First 3,000	50¢
Next 7,000	25¢
" 10,000	20¢
" 10,000	15¢
Over 30,000	10¢

Minimum, $1.50 per month.

ILLINOIS

Albion, 1,800.

Gals. per Month	Per 1,000 Gals.
3,000 or less	60¢
3,000 to 5,000	55¢
5,000 to 10,000	50¢
10,000 to 15,000	45¢
15,000 to 25,000	40¢
25,000 to 35,000	35¢
35,000 to 45,000	30¢
45,000 to 55,000	25¢
55,000 to 85,000	20¢
85,000 or over	15¢

Minimum Charges

Size of Meter	Per Month
¾" to 1"	$1.25
Over 1"	1.50

Batavia, 5,000.

First 400 cu. ft. per quarter, $3.50.
15¢ per 00 cu. ft. for excess.
Discount o $1 on first 400 feet allowed if paid before 15th of month.

Belvidere, 7,800.

Cu. Ft. per Month	
First 315 (minimum)	75¢
	Per 100 Cu. Ft.
Next 100	15¢
" 100	13¢
" 100	12¢
" 500	11¢
1,115 to 13,333	9¢
Over 13,333	6¾¢

Brookfield, 10,000.

Gals.	Per 1,000 Gals.
First 15,000	40¢
Next 5,000	35¢
" 5,000	30¢
" 25,000	25¢
Over 50,000	20¢

Minimum, including service charge and 1,666 cu. ft. of water $5.00.

Byron, 1,000.

Gals.	Per 1,000 Gals.	Total Bill
First 3,000	40¢	$1.20
Next 2,000	35¢	1.90
" 5,000	30¢	3.40
" 5,000	25¢	4.65
" 5,000	15¢	5.40
" 10,000	14¢	6.80
" 10,000	13¢	8.10
" 10,000	12¢	9.30
" 10,000	11¢	10.40
" 40,000	10¢	14.40
Additional	9¢	

Carbondale, 10,000.

Gals. per Month	Per 1,000 Gals.
First 10,000	40¢
Next 20,000	30¢
" 70,000	20¢
" 400,000	15¢
500,000 to 5,000,000	12¢
Over 5,000,000	9¢

Minimum, $1.50 for 3,750 gallons per month.

Carthage, 2,500.

Gals. per Month	Per 1,000 Gals.
2,000 or less	60¢
Next 5,000	55¢
" 5,000	50¢
" 5,000	45¢
" 10,000	40¢
" 10,000	35¢
" 10,000	30¢
" 10,000	25¢
" 30,000	20¢
Over 88,000	15¢

Minimum Charges

Size of Meter	Per Month
¾" to 1"	$1.25
Over 1"	1.50

Champaign and Urbana, 50,357.

Gals. per Day	Per 1,000 Gals.
First 500	41¼¢
Next 500	33¢
" 500	24¾¢
" 500	16½¢
" 500	13.2¢
Balance	9.9¢

Chicago Heights, 25,000.

Cu. Ft. per Quarter	
First 800 (minimum)	$3.00
	Per 100 Cu. Ft.
Next 4,200	27¢
5,000 to 40,000	11¼¢
Over 40,000	7½¢

Clinton, 7,000.

Gals. per Quarter	Per 1,000 Gals.
First 3,000	50¢
Next 2,000	35¢
" 2,000	25¢
" 3,000	20¢
" 10,000	15¢
" 480,000	12½¢
Over 500,000	10¢

Minimum, $1.50.

Collinsville, 10,000.

For consumption not exceeding 45,000 gals. per quarter:

Gals. per Quarter	Per 1,000 Gals.
First 15,000	50¢
Next 15,000	40¢
" 15,000	30¢

Minimum, $1.00 per month; $3.00 per quarter.

For consumption from 15,000 to 500,000 gals. per month:

Gals. per Month	Per 1,000 Gals.
First 5,000	50¢
Next 5,000	40¢
" 5,000	30¢
" 5,000	25¢
" 30,000	20¢
" 50,000	15¢
100,000 to 500,000	13¢

For consumption of 500,000 or more per month:

Gals. per Month	Per 1,000 Gals.
First 500,000	12¢
Next 500,000	11¢
Over 1,000,000	10¢

Demand charge for meters over ¾", $8.00 per month.

Danville, 40,000.

Domestic Rates

Gals. per Month	Per 1,000 Gals.
First 15,000	37.8¢
Next 135,000	28.3¢
Over 150,000	13¢

Minimum, 50¢ per month.

Wholesale Rates

Gals. per Month	Per 1,000 Gals.
First 3,000,000	13¢
Over 3,000,000	7.7¢

Minimum, $120.00 per month.

Decatur, 53,000.

Gals. per Quarter	
5,000 or less	$2.50
	Per 1,000 Gals.
5,000 to 10,000	50¢
10,000 to 100,000	30¢
100,000 to 500,000	20¢
500,000 to 1,000,000	10¢
1,000,000 to 5,000,000	8¢
5,000,000 to 15,000,000	7½¢
15,000,000 to 30,000,000	7¢
30,000,000 to 50,000,000	6½¢
50,000,000 to 75,000,000	6¢
Over 75,000,000	5½¢

DeKalb, 9,000.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 700	30¢
Next 700	25¢
" 1,300	22¢
" 6,700	15¢
" 6,700	11¢
Over 16,100	9.3¢

Plus 10% if not paid by 15th of the month.
Minimum, $1.25 per quarter net.
Meter rental 25¢ per quarter additional where meter is owned by the city.

Des Plaines, 9,500.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
First 10,000	33¢
Next 10,000	22¢
Over 20,000	16½¢

Minimum, $1.50 per quarter.

Dixon, 10,000.

Cu. Ft. per Month	Per 100 Cu. Ft.
First 1,000	33.3¢
Next 10,000	24.4¢
Over 11,000	14.4¢

Service Charge

Size of Meter	Per Month
¾"	$0.30
¾"	0.40
1"	0.60
1½"	0.90
2"	1.80
3"	4.00
4"	6.00
6"	12.00

East Moline, 12,000.

Minimum, 1,200 cubic feet or less, gross, $3.00; net $2.25, per quarter.

Cu. Ft. per Quarter	Per 100 Cu. Ft.
1,200 to 4,000	21¢
Next 4,000	17¢
" 12,000	13¢
Excess	10¢

(*To be continued in the August issue*)

Three States Enact Safety-Responsibility Laws for Motorists

ENACTMENT by the New York and New Jersey Legislatures of a motoring statute embodying the principles of the Safety-Responsibility law advocated by the American Automobile Association, and the passage of a similar measure by the Rhode Island General Assembly, should do much to insure greater safety on streets and highways, officials of the A. A. A. believe.

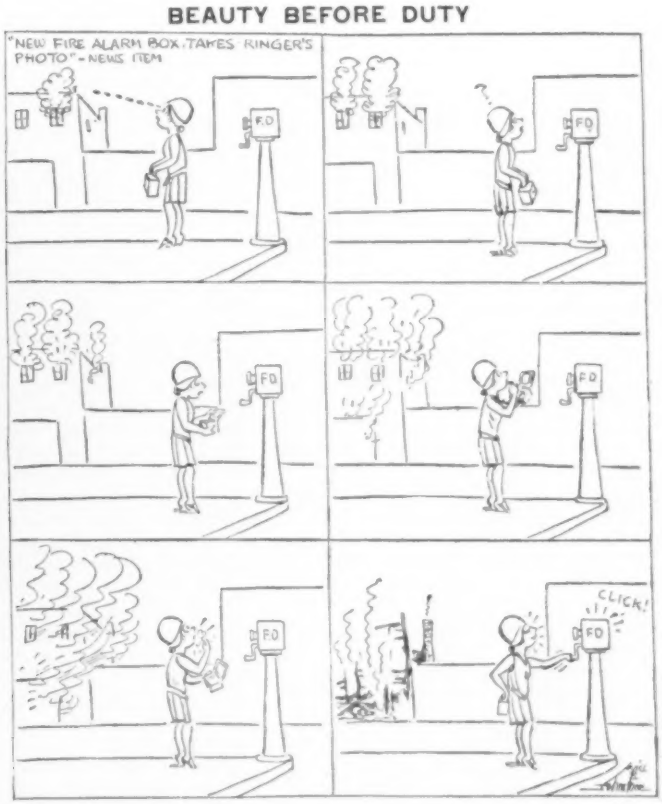
The principles of the Association's law were framed with the aim of curbing the reckless driver, compelling his assumption of financial responsibility after his recklessness has been proved, and disfranchising, as far as the highways are concerned, those who fail to meet damages adjudged against them. The New York, New Jersey and Rhode Island laws, President Thomas P. Henry, President of the A. A. A., points out, effect all these liabilities for the minority of reckless and irresponsible operators, without in any way infringing on the freedom of the great majority of careful and responsible drivers.

What the Law Requires

"Essential features of the law," says the official A. A. A. statement, "provide for the universal adoption of a drivers' license law; stringent provision for the suspension of driving permits of all persons found guilty of serious violations of motor vehicle laws until such time as they have provided liability against future accidents; denial of the use of highways to persons who have failed to pay a judgment against them when the award is made by a court of competent jurisdiction and until they have security for the future, as well as effective provisions to prevent a person who has been ruled off the road in one state from operating a car in other states.

"In a few instances—and these in the main due to a serious misunderstanding—some criticism has been made of the law on the ground that some of its most stringent features do not become operative until after a man has proved his disregard for public safety by criminal operation of his automobile. All criminal law proceeds on this same principle. To proceed otherwise would be to subject all our citizens to disabilities intended for the criminal minority. While the Safety-Responsibility law does not absolutely guarantee compensation for the victim of an accident, it disfranchises the perpetrator, as far as the use of a motor vehicle on the highways is concerned, until he has paid these damages and established his responsibility for the future. This provision is a most compelling argument in favor of a settlement and will go a long way toward the solution of the problem of unpaid damages. In addition, it must be remembered that the Safety-Responsibility law is primarily a safety measure directed at the reckless driver."

Shall the Camera's All-Seeing Eye Become an Adjunct to the Fire-Alarm Box?



Commercial photographers in New York are reported to be apprehensive over the future of their business on account of the proposal to equip fire-alarm boxes with hidden cameras which would permit anyone to take his own picture simply by turning in an alarm. While Mayor James J. Walker pensively tests the new device in front of the City Hall, one of the artists of the New York "World" imagines what may happen when the fair sex enters into the spirit of the occasion. The test conducted by the Mayor is reputed to have been successful, however, the camera shown attached to a long metal arm above, recording a movie strip of the Mayor's deed. Such picture strips, if the culprits will only expose themselves properly, would be used in tracing the false-alarm enthusiasts who perpetually call out the fire department just for a "thrill."

Training-Movements for Firemen

A LIST of 20 evolutions or training-movements has been announced for firemen attending the zone schools being conducted in New York State this summer by the State Conference of Mayors and the State Fire Chiefs' Association.

The schools operate on Mondays, Wednesdays and Fridays with one lecture and two training-movements presented each Monday and repeated the other two days. At the end of the ten weeks' course, the men will have performed the following evolutions:

1. Tying approved knots.

2. Hoisting line to roof outside of building, making line fast under cornice and on roof with approved knots.

3. Hoisting 35-foot ladder to roof and lowering it to yard.

4. Removing burst length from line between fourth floor and roof, and between fourth floor and street; replacing it with new lengths.

5. Stretching 2½-inch lines from hydrant and connecting to standpipe.

6. Stretching 2½-inch line from hydrant, connecting to standpipe floor valve inside of building. (Outside connection is out of order.)

7. Stretching line by ladder to third floor, placing line in proper position to operate through window and fastening with ladder strap.

8. Raising and lowering 55-foot ladder.

9. Siamesing two 2½-inch lines with one 3-inch lead line, putting on perfection pipe holder and proper size nozzle.

10. Stretching in as many 2½-inch lines as possible to lead out with one 3½-inch line; putting on Eureka pipe holder and proper size nozzle.

11. Stretching 2½-inch line with two 2½-inch leading lines which can be controlled independently.

12. Stretching 2½-inch line, putting on street pipe and sticking with proper size nozzle.

13. Making proper connections to take suction.

14. Stretching three lines and making connections to turret pipe on hose wagon, and operating with proper size nozzle.

15. Stretching 2½-inch line from pumper and connecting to water-tower.

16. Raising and operating aerial ladder.

17. Stretching line by aerial ladder, placing line in proper position to operate through window.

18. Stretching lines and making connections to cellar pipe, Baker pipe, Hart pipe and distributors, and operating same.

19. Stretching 2½-inch hose line by fire-escape to fifth floor.

20. Proper use of pompier ladder.

What New Recruits Must Learn

A separate curriculum has been arranged for the probationary fireman school, and all students in that school must be proficient at the completion of their course in the following points:

1. Knowledge of the proper use of all hooks and fittings and the proper size nozzles used by the department in extinguishing fires.

2. The handling and use of scaling ladders and ordinary ladders.

3. Crossing from house to house or window to window with scaling ladders.

4. Hoisting and lowering ladders, large hooks and hose, and fire extinguisher to and from roof.

5. Coming down rope from roof and window and carrying a person down; also, lowering other to street by rope and from window or roof to street.

6. Jumping in life-net and properly holding it and other life-saving appliances.

7. Discharging life-line gun thereby throwing life-line to roof.

8. Connecting lines of hose to cellar pipes and also sub-cellar pipes, Baker, Hart and Bent cellar pipes, Breslin distributor, and instruction as to the proper uses and how to operate.

9. Connecting lines of hose to the different connections and the proper size nozzles and pipe holders used in each case.

10. Stretching line of hose to roof from outside of building and properly securing it at cornice and around chimney with approved knots, also proper size nozzle and pipe holder.

11. Removing burst length of hose from line between fourth floor and roof, and between fourth floor and street, and replacing with new length of hose in each case.

12. Stretching line of hose by stairway to the different floors and to the roof, and knowing how to secure it with ladder straps and the proper size nozzle.

13. Instructions in the operation of high-pressure hydrants.

14. Instructions in first aid to injured.

15. The proper method in sending in alarm of fire from street box or station; sending in second, third, fourth, and fifth alarms; special calls; simultaneous calls; ambulance call and all other department signals.

Place of Accident, Not Place of Death, Important in Traffic Accident Statistics

THE usual statistics showing the mortality from automobile accidents according to the place of death rather than the place of the mishap, present an erroneous picture of conditions in many sections of New York State, maintains Dr. J. V. DePorte, Director of the Division of Vital Statistics, Department of Health.

In a recent survey* of fatal motor accidents in that state during 1927, Dr. De porte finds a striking difference between the recorded and the corrected totals for the urban and rural sections. Deaths recorded from automobile accidents in the urban territory, exclusive of New York City, for 1927 numbered 964. Of this total, however, only 633 were caused by accidents occurring in urban communities, while 327 resulted from accidents in rural districts. Thus, while the recorded urban automobile death-rate was 28.5 per 100,000 of population, the corrected or actual rate was but 19.4. On the other hand, the survey points out that of the 476 such deaths recorded in rural New York, all but 7 were caused by accidents actually occurring in the rural districts. Adding to this number the other 327 deaths which resulted from mishaps in rural sections, but recorded in urban centers, also 9 deaths recorded in state institutions and 4 recorded in New York City, a total of 809 deaths is chargeable to the rural territory. The corrected or actual rate for rural New York, therefore, is 39.3 per 100,000 population, as compared with the recorded rate of 23.1, Dr. DePorte points out. The allocation of deaths according to place of occurrence decreases the urban rate by 32 per cent and increases the rural rate by 70 per cent.

"The main causative factor of automobile accidents is careless driving," Dr. DePorte concludes.

"The regulation of traffic in urban centers is becoming more strict and more efficient. When a car makes its way through congested streets and finally reaches open country, the person at the wheel is likely, in the very exuberance of spirit, to "let 'er go!" The effects of this release from enforced caution are seen in the comparative rates of fatal accidents. The allocation of deaths according to the place of occurrence of the accidents shows that in 1927 the recorded death-rate in rural New York was more than double the rate in the urban part of the state, outside of New York City. In almost every county, the corrected rural rate was higher than the corrected rates of the cities and large villages. The weight of the problem clearly lies in the rural districts, and greater attention should therefore be given to traffic on rural highways if mortality from automobile accidents is to be reduced or even effectively checked."

* Listed on page 173.

Ohio City Advertises by Postal-Card Maps

AN attractive colored map of Zanesville, Ohio, reproduced in postal-card form, is being utilized by the Chamber of Commerce of that city as an effective piece of publicity material.

Prospective residents and visitors are supplied with these postal-card editions of the city map, and the initial supply of 100,000 is being mailed to all sections of the United States and Europe. Ben F. Lemert, of the College of Commerce, Ohio State University, suggested the plan to the Chamber of Commerce when he found that it worked successfully in certain German cities and in Buenos Aires.

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Recent Zoning Ordinances

ATLANTA, GA.—June 7, 1929.
NEW ORLEANS, LA.—June 1, 1929.
LONGPORTE, N. J.—June 1, 1929.
BEDFORD, N. Y.—June 4, 1929.
ROCHESTER, N. Y.—1929.

Amendment of New York Planning Commission Law with Relation to Cities

The New York law with regard to planning commissions for cities, authorizing the adoption and providing for the protection of an official map (1926, Ch. 690) has been amended (1929, Ch. 605). The new law changes the provisions with relation to the membership of the planning board. Under the law as amended, the board shall be made up of two city officials, and three lay members with overlapping terms of three years each.

County Planning in New York

A recent amendment of the General Municipal Law of New York, adding Section 5 239-e and 239-f to that law, broadens somewhat the power of federation for regional planning of cities, villages or towns.

Three Decisions on Dedication of Streets in Subdivisions

ALABAMA.—*Nixon v. City of Anniston*, 121 So. 514.—When the owner causes land to be platted and sells off one or more lots according to the plat, there is a completed dedication of streets laid out thereon, whether the plat is recorded or not.

All who buy lots with reference to a general plan or scheme indicated on the owner's plat acquire a right in all public ways designated thereon, and public acceptance of such dedication, although implied, relates to all such ways.

Neither aquiescence in obstruction, private use of streets by citizens, laches in resorting to legal remedies to remove obstructions, nor statutes of limitation, nor the doctrine of equitable estoppel or prescription, can defeat the city's right to maintain a suit in equity to remove the obstruction. A city cannot permit the obstruction of a street without legislative authority.

COLORADO.—*Board of Commissioners of Jefferson County v. Warneke*, 276 Pac. 671.—Where the owner of land dedicated streets, but the plaintiff took adverse possession before dedication was accepted, this in effect withdrew offer of predecessors in interest to dedicate.

MARYLAND.—*Mullan v. Hochman*, 145 Atl. 554.—The implied covenant of right-of-way on the part of a grantor selling property previously subdivided into lots shown as bordering on streets or alleys, is limited to that portion of the unopened streets over which it is necessary for the grantees to pass to a public highway.

The conveyance of lots with reference to a plot subdividing property, and showing lots as abutting on streets, does not constitute dedication of the streets and alleys laid down on the plot where the description in the deed gave the grantee a fee simple title to the center of the street.

Property offered for dedication may be acquired by adverse possession prior to acceptance of the dedication by the public.

Outdoor Advertising on Public Property

CALIFORNIA.—*Pacific Railways Advertising Co. v. City of Oakland*, 276 Pac. 629.—An ordinance prohibiting commercial advertising on the exterior sides of street cars is invalid, since it is not reasonable regulation, under the police power, but absolute prohibition. The case of *Fifth Avenue Coach Co. v. City of New York*, 194 N. Y. 19, affirmed 221 U. S. 467, is distinguished because the objectionable character of the proposed advertising in that case made that regulation reasonable.

Advertising is within the powers granted by franchises to the street railway company in view of the common practice of using street railway cars for advertising, since the silence of the franchise on this point shows that LO restriction of such customary advertising was contemplated.

NOTE BY EDITOR.—This case raises two distinct questions; first, whether the charter and franchise of the company using the public streets conferred upon it the right to carry on the business of general advertising, and, secondly, whether, even if it did, such advertising on public property is lawful. On this second question, at least, this decision would seem to be erroneous. The municipality is the owner of the streets, and may and should prohibit general advertising on them (Williams' "Law of City Planning and Zoning," page 408).

The Court distinguishes the Fifth Avenue case on the ground that in that case the advertisements on the exterior of vehicles using the public streets were objectionable; and that in the Oakland case, the ordinance prohibited all such advertising instead of merely prohibiting such as was objectionable. In fact, however, the ordinances in the two cases were both absolute prohibitions, so that the attempt of the Court to distinguish the two cases would seem to be unsuccessful; the New York Court citing the evil effects of the advertising in fact used as a justification of its position that the ordinance prohibiting all such advertising was a lawful exercise of municipal power.

Grocery Located Contrary to Zoning Ordinance, a Public Nuisance

LOUISIANA.—*State ex rel. Dema Realty Co. v. McDonald*, 121 So. 613.—A retail grocery store continued in violation of a zoning ordinance is a public nuisance. An individual damaged by it has his private remedy for its abatement, although the public authorities also may bring action.

County Master Plan—Platting

MICHIGAN.—*Le Fevre v. Houseman-Spitzley Corporation*, 224 N. W. 659.—Under the Michigan statutes and constitution the county authorities have the right to make master plans or platting guides for the laying-out of streets or alleys in a township or municipality which do not meet the approval of the governing body of said township or municipality, and to compel said governing bodies to conform to said master plan in their platting, or approval of platting, wholly within the boundaries of said township or municipality. In other words, the platting law of the state vests in the county authorities absolute control over the location of streets or alleys wholly within the boundaries of such town or municipality; and such law is not contrary to the state constitution.

Mapping a Street as a Taking of Property

PENNSYLVANIA. — *In re Philadelphia Parkway*, 145, Atl. 600.—The mere plotting of a street on a city plan does not constitute a taking of property in the constitutional sense, so as to give abutting owners the right to have damages assessed. *In re Sansom Street* (Caplan's Appeal), 293 Penn. 483 referred to.

P. L. 1915, page 894, proivding that in the absence of an appropriation at an earlier date the placing of a park on the city plan is an appropriation of the land to public use at the expiration of five years from the confirmation of the plan is not a deprivation of property without compensation in spite of the fact that compensation may be delayed five years. *In re Philadelphia Parkway*, 250 Penn. 257, in which ten or eleven years was held to be unreasonable, cited.

Racial Covenants and Zoning

UNITED STATES.—*Newton v. Wallace*, Supreme Court.—A private covenant forbidding the transfer of a given piece of real estate to people of the colored race, is valid.

NOTE BY EDITOR.—Any such segregation of the races by zoning under the police power is invalid, as was held by the Supreme Court of the United States in *Buchanan v. Warley*, and other cases. In this connection it may be noted that the Georgia ordinance, listed above, is of this character.

Under the title, "The Progress of City Planning and Zoning Law During 1928," Mr. Williams makes his annual review of this subject at page 82 of the 1929 Municipal Index.

THE TAXPAYER'S DOLLAR

A Monthly Department of Budgeting, Assessment, Taxation, Accounting and Other Phases of Municipal Finance

Conducted by A. E. BUCK, *National Institute of Public Administration, New York*

A Scheme for Rating Cities on the Basis of Service

MABEL L. WALKER has written an article on "Rating Cities According to the Services which Their Citizens Are Getting," which appears elsewhere in this issue. Miss Walker, who is a graduate student in political economy at Johns Hopkins, has been working for the past two years on the problem of the distribution of municipal appropriations. She has attempted to find on what comparable basis, if any, appropriations are being allotted to the different city activities. She has proceeded on the assumption that "if the budgets of a sufficiently large number of the most progressive cities could be analyzed and compared, after variations due to peculiar political or geographical exigencies had been eliminated, certain trends would be clearly apparent which would point the way to a form of expenditures consistent with the state of progress at present achieved by society." She admits, however, that the results would "never be mathematically exact and would probably never be capable of exactly the same application to any two cities," but at the same time she thinks they would "show limits, more or less imperfectly defined, within which after proper allowance for the particular situation, certain expenditures should fall."

The article, referred to above, contains certain data which Miss Walker has thus far developed in the course of her study and which she believes to be significant. In fixing the general lines for collecting these data, she has placed emphasis on results rather than on methods or costs. Of course, it must not be forgotten that methods and costs help to determine results; the three are inextricably bound up together. We cannot have a budget that sets forth only the ends that a government should accomplish; the means of securing these ends and the costs of doing so are necessary features of any budgetary plan. But, assuming for the moment that we can divorce these things, what are the desirable municipal functions from the standpoint of results only? Miss Walker believes they fall in three main groups—protection, welfare, and public works. She ignores the general administrative functions, because "they occupy an intermediate and not a final rôle." This is indeed giving short shrift to some of the most important functions of the city government, at least, from the standpoint of the administrator.

As to the strictly operating or service functions falling within the three main groups, Miss Walker has not considered all these functions, but she has made selections apparently suited to the end which she has in view. She has succeeded by this method in stripping these functions of a good bit of the complexity which they actually have. In other words, she has reduced her propositions to simple terms—perhaps, in some instances, to terms without much significance—for the purpose of making her ratings. The result is that she has "selected" five functions under each of the three main groups, thus evenly balancing the groups (at least, that is her expressed intention). She then discovered that there were no comparable statistics on the "ratio of arrests to felonies committed," which she deemed to be the best index to police efficiency, so she dropped out the function of police. She eliminated from this same group "communicable diseases per 1,000 population," because the data were unsatisfactory. For the same reason, she dropped the "average daily attendance of schools" from the "welfare" group. This left her with twelve functions—five under public works, three under protection, and four under public welfare—upon which to make her ratings. She then weighted these functions so as to give each of the three major groups about the same numerical value—a more or less arbitrary performance.

In applying these weighted values to the various cities, Miss Walker gave the city with the best record (what she thought was the *best record* from the available data) in any function 100 on that score, and the city with the poorest record 50. The other cities in her list were graded on a percentage basis between these two extremes. No city was included in the list for a final rating unless data were available on at least eight out of the twelve functions, with as many as two in each major group. This is, in brief, the method of her rating scheme, which places Oak Park, Ill., at the top of a list of 159 cities and Nashville, Tenn., at the bottom. In conclusion, she makes certain statements about the results of her ratings, which, although interesting, seem hardly warranted, in some instances, on the basis of the facts.

While Miss Walker has attempted to do a big piece of work in rating city governments, her results are, on the face of them, largely tentative. She seems to have made too many arbitrary choices both as to functions and bases. She has eliminated certain municipal functions of major importance. She has chosen certain bases which are not always significant of results or accomplishments, for example, the number of times a street is cleaned per week, or the number of times garbage is collected per week. Finally, the statistical data available for her use are not thoroughly reliable; they are scanty, sometimes incorrect, and incomparable in many cases.

Notwithstanding these handicaps to comparisons which really prove anything—most of which Miss Walker would doubtless concede—THE AMERICAN CITY feels that her article justifies the space devoted to it on pages 130 to 134 of this issue. Not only is the study one of the most painstaking yet made of the baffling problem of rating municipal services, but the difficulties encountered in its preparation give added testimony to the great need—long emphasized by the Bureau of the Census and municipal research agencies—for more exact and comparable data on municipal services and financial statistics of cities.

How Budgetary Control Is Being Developed in a Small Manager City

MANAGER E. C. GARVIN of Brunswick, Georgia, is carrying on a most interesting experiment in the development of a system of budgetary control. Some time ago he came to the conclusion that he needed a means of keeping up with the rate of income and outgo of the city government, assuming that he was properly to direct the execution of the city budget. Not only did he wish to know how much was coming into and going out of the city treasury each month, but he wanted to anticipate—if that were possible—the demands upon the city treasury and to determine, to some extent, the timeliness of expenditures which were being made. He therefore hit upon the idea of a monthly schedule of anticipated income from the different sources and a monthly allotment of authorized expenditures. With this in mind, he took the fifteen main sources of city receipts and estimated just how much would be derived from each of these sources during each of the twelve months of the fiscal year; he then took the authorized expenditures—eleven main groups—and allotted them to each of the twelve months of the fiscal year according to the seasonal and other demands of the work. He had a picture, when this was completed, showing on one side the moneys which were expected to come into the city treasury during each month, and on the other side the payments which were expected to be made out of it. Thus he knew the estimated condition at the end of each month of the fiscal year.

But you may ask what the advantage of this was in the process of actual administration. Just this: it was the basis for the exercise of financial control. As each month was completed, the actual figures with respect both to receipts and expendi-

tures were entered alongside the estimated and allotted figures. The trend was thus clearly indicated by a comparison of the two sets of figures. If the receipts were not to be realized at the rate expected, then it might be possible to defer some of the proposed expenditures until a later date when the receipts would come in. If this were not advisable, the manager, at least, knew just what the situation was. He was no longer "guessing" as to the outcome, or completely in the dark as to the probable state of the city treasury. He knew what was required and could make the necessary adjustments, so far as possible, long before the end of the fiscal year. He did not suddenly wake up on the last day of the year to find a deficit in the city treasury. He had a month-to-month plan for the entire year, and he saw by monthly reports just how this plan materialized as he went along. Certainly a great advantage over any hit-or-miss scheme of financial administration.

Even in a short period, Mr. Garvin may be regarded as having made a notable success of his system, although handicapped somewhat by an accounting system kept on the cash basis. He informs the editor of this department that he is extending his system during the current year and adding a number of refinements. What Mr. Garvin has done in the way of budgetary control is to be commended to managers and mayors of all small cities. Brunswick, by the way, is a city of about 17,000 population located on the southeast coast of Georgia.

Detroit Bureau Seeks Machining of Tax Records and Bills

IN its publication called "Just a Minute—," the Detroit Bureau of Governmental Research points to the great need which exists in that city for machining the tax records and bills. Asserting that "no man should do what a machine can do better and quicker," it proceeds to describe briefly the existing practice as follows:

> "Every year, the city treasurer collects city and school taxes from all property owners in Detroit. Every year the county treasurer goes through the same process for the collection of state and county taxes.
>
> "This means a lot of record keeping. If you elect to pay your taxes in two instalments—July and December—it means more record keeping.
>
> "The billing and collecting of city taxes begins with the Board of Assessors. There are over 480,000 separate parcels of land and buildings, and over 30,000 personal property items. Each parcel must be entered annually upon the tax roll, with a description as to location, dimensions, assessed valuation, and owner. This requires 118 bulky volumes of 250 pages each. One or more tax bills also must be prepared every year. These tax rolls are prepared in part by typewriter and in part by longhand and rubber stamps. Each roll is handled several times during steps in the process, extending over a period of 18 months. Tax bills are prepared by another longhand process.
>
> "For the great majority of these parcels there is no change from year to year in any of the information recorded. The clerical detail is thus largely a routine re-copying from year to year."

The Detroit Bureau then shows what has been accomplished in other localities, notably in Cook County (Chicago) and in Baltimore, by the installation of machines in tax billing. It describes what has been done in these places in the following manner:

> "In Chicago, in 1923, the Cook County Commissioners installed machines to do the vast clerical work involved in the assessing of property and billing of taxes every year. A complete set of addressing, tax extending, and tax billing machines and equipment necessary for all the county offices involved was set up in a central office. These machines have since handled the records for over 1,500,000 descriptions of real and personal property. Each plate, containing the essential description, etc., is used from eight to fifteen times each year, for tax records, and current and delinquent bills. The extensions are made by modified adding machines.
>
> "The Chicago installation cost $225,000. It eliminated 300 clerks, and the efficiency expert of Cook County estimated that the first five years' savings over former methods were $1,669,000—to the taxpayers of the county.
>
> "Newspapers throughout the nation announced in 1925: 'Business men rescue Baltimore from debt; save $2,500,000 a year for Baltimore.' The leading corporations loaned that city, free of charge, the services of their executives to install economical systems and ideas in general use in the business world, but not generally applied in city government.
>
> "One important development was a central bureau for billing and collecting all revenues, including the installation of machines for the constant re-writing of tax records, bills, etc.
>
> "The Baltimore installation, to control over 500,000 individual accounts, cost $110,000; the system required 66 employees in place of 108 employees formerly, with an estimated annual saving of $80,000. The greater gain, however, as stated by the Vice-Chairman of the Commission on Economy and Efficiency of Baltimore, was in the dispatch, accuracy, and security with which every phase of the work is now handled. Revenue collections in 1923 were 80 per cent of the amount billed; this was gradually improved under the new system, until, in 1927, they were 95 per cent.
>
> "Many other cities have installed mechanical devices for tax work, and Michigan leads in the number. Among the cities are Pontiac, Flint, Grand Rapids, Lansing and Highland Park. The Pontiac installation was made in 1917, and the same service now takes care of 40,000 tax descriptions and 8,000 water bills. It is estimated by officials of that city that the original investment has been repaid twice annually."

Payment of Taxes Through Neighborhood Banks in Baltimore

THE city collector of Baltimore is authorized by ordinance to designate such banks and trust companies within the city as may be necessary or desirable for the convenience of the public to act as his agents in the collection of state and city taxes and all other municipal charges and assessments. The banks and trust companies must be chosen from those approved as city depositories. They receive the tax moneys, receipt the bills, and report daily to the city collector.

This method of tax collection was recommended by Mayor Broening's Tax Commission named several months ago to study the best methods of helping the taxpayers to meet their obligations to the city. The Commission thought such method would greatly promote the public convenience by saving the time and trouble of many persons in coming to the City Hall, especially during the rush period in July. The possibility of paying the taxes in two or more installments was also considered by the Commission, but its conclusions on this point were negative. It recommended keeping the single payment scheme, however, with the establishment of "tax savings clubs" by the local banks. The idea of these clubs was to bring about the gradual accumulation of deposits for the payment of taxes for the current or next succeeding year. But this was to be purely a matter between the banks and the taxpayers; there was to be no responsibility on the part of the city government.

Ohio's New Delinquent Tax Law

THE Ohio Legislature, which recently adjourned, passed what is considered to be an important measure with respect to delinquent taxes. This law was drafted under the auspices of the Citizens League of Cleveland. As finally enacted, it provides briefly as follows:

1. It repeals the Boyle law by which foreclosure proceedings against delinquent property could not be instituted for four years, and practically not until six years after delinquency.
2. It defines "delinquent lands" as lands upon which taxes and assessments have not been paid for two semiannual taxpaying periods, and requires county auditors to prepare delinquent land lists in April and October after each taxpaying period. These lists must be published twice in two newspapers in all counties except Cuyahoga.
3. The county's tax delinquencies then become a first lien on the delinquent land described in the lists, and bear 8 per cent interest in addition to a 10 per cent penalty.
4. In May and November the county auditor must prepare a "foreclosure" list containing all property delinquent for two years, and certify copies to the county prosecutor and the board of tax delinquencies.
5. The board, consisting of one county commissioner, the county auditor, and the county treasurer, must examine the list and determine which delinquent properties will not, upon public sale, bring enough to pay all taxes and assessments. This list must be published in two newspapers as the "foreclosure" list.
6. All delinquent property, so recommended by the board, must be sold by the county treasurer at a public sale to the person "offering to pay taxes and penalties on such land, for the least quantity thereof."
7. The county auditor must then issue a certificate of sale to purchaser covering the quantity so purchased. If the certificate is not redeemed by the original owner within two years, then the county auditor must issue a valid deed to the purchaser for the quantity so purchased.
8. The county prosecutor is required to institute foreclosure proceedings against any delinquent land upon the receipt of a delinquent land tax certificate from the county auditor, which he issues two years after such land has appeared on the delinquent list. He is authorized to have a search made and a certificate of title furnished before instituting foreclosure proceedings.
9. The cost of all such foreclosure proceedings must be assessed back on the delinquent land.

Condemnation Procedure in Cities Summarized

THE Detroit Bureau of Governmental Research has recently made a study of "the condemnation procedure in twenty-four cities" of the United States. This list includes most of the large cities of the country. The study shows a rather notable tendency toward uniformity in the practice of these cities. It is summed up thus:

"1. The initial and final authority for 'necessity' in condemnation cases is vested in the city council, which also has authority to vote funds for purchase.

"2. The courts are not used for the initial determination of the damages, but more usually for appeal only, in which case the trial is held with a jury obtained as in any other civil case.

"3. In lieu of courts, the cities are about equally divided between using the city council for determining awards and damages, or a commission especially appointed for the case. When a commission is used, the members are appointed by a court.

"4. Both the city council and the commission hear expert testimony of appraisers as submitted by both sides. In all cases the city is represented by more than one appraiser, the number somewhat depending upon the size of the project. Appraisers are not paid any set fee.

"5. At the present time, little use is made of a permanent board to handle condemnations.

"6. Sales are the predominating influence in determining appraised value."

Keeping Accounts in the Fourteenth Century

IN striking contrast with the machine accounting of the present day is the ancient English system of keeping accounts by tally sticks, described in the May issue of the Stone & Webster *Journal*. It seems that tally sticks were used in governmental and commercial institutions for a thousand years before writing on paper came into vogue. One of these sticks, on which is notched an account at the British Exchequer, indicating the deposit of a small amount by one Thomas de Lovetot in 1347, is now in the possession of Samuel S. Dale, Brookline, Mass., who describes this most interesting relic thus:

"When a person deposited money with that institution, the clerk cut notches in a stick, which was about 8 inches long and ¾-inch square. There was a deep notch for each pound sterling, a small notch for each shilling, and a scratch or slit for each penny of the amount deposited. The depositor's name and the date were then written on two sides of the stick.

"The tally clerk next sawed the stick in two at a point a short distance from the end and then split it lengthwise into two pieces, one longer than the other and having a butt at one end. The two pieces had each the same number of notches and each bore the date of the deposit and the name of the depositor. The smaller piece was given to the depositor as a certificate of the deposit; the larger piece was retained in the Exchequer as a record of the transaction. If a piece of paper is torn in two we have two pieces that match when brought together, but no other piece can ever be torn to match either of the first two. And so with the tally sticks. No other stick could ever be split to match either the one held by the depositor or the one in the Exchequer. Counterfeiting was impossible.

"When the depositor wanted his money, he presented the stick at the Exchequer, the corresponding piece was found, the two were fitted together, and the amount indicated by the notches was paid by the Exchequer. This system was in force for a thousand years or more previous to 1828, when the last payment on a tally stick of which there is any record was made."

It is stated that for several centuries these tally sticks, representing unclaimed deposits, had accumulated in the basement of the House of Lords, until the growing pile became a nuisance. Finally, the Government ordered them destroyed, in 1834. They were fed into the furnace beneath the House of Lords, beginning on the morning of October 16 and continuing all that day. As the last of these sticks were being poked into the furnace, the overheated flue started a blaze which immediately got beyond control and in a few hours reduced both Houses of Parliament to ruins. Such was the dramatic end of the use of tally sticks as a system of accounting—a system which was as far behind the paper-and-pen system as the latter is now behind the machine system.

The Motor Transport Fund

The Fourth of a Series of Articles on Mechanical Budgetary Control Accounting, for Municipalities and Other Public Bodies, Which Began in April

By GEORGE G. SCOTT, C.P.A.
CHARLOTTE, N. C.

DURING the past few years the transportation equipment of our cities has been motorized and an entirely new character of expenses introduced into departmental operations.

With the growth of the motorization of transportation equipment there has arisen a new sort of waste that requires a different scheme of detail cost accounting for its identification, as well as new methods of organization. A scientific organization and departmentalization of the entire motor equipment of the city, together with the adoption of mechanical cost-accounting methods, has successfully solved the question of the control of its maintenance.

It is well known to those familiar with this particular phase of expenses, that with the old-time methods of organization and with the un-coordinated cash-book systems to take care of the detail costs, it would be impossible to detect or control the waste of expenditures involved in maintaining the motor transport operations. The mechanical budget control system provides for a method of costing and has led to detection and saving of waste in the operation of motor equipment that have attracted unusual attention. In one prominent municipality of the 50,000 population class, operating about 100 pieces of equipment, the installation of this system of costing led to an immediate reduction in the gasoline expense of about $500 per month and a saving in repairs that amounted to $14,000 per annum, which made an annual saving of $20,000 per annum.

The scheme of costing provides for the departmentalization of the entire equipment so far as general supervision and accounting are concerned, regardless of what department or activity may have or use the equipment. All of the functions making up the department are centralized in order to preserve coordinated control of the individual operating cost of each piece of equipment. The expenses are kept by objects and not confined to character of expense.

Each piece of equipment is given a serial number, by which it is thereafter known, and which is painted on the equipment very plainly for easy identification. Practically each piece is fitted with hub-meters so that mileage statistics may be kept of each of the cars and trucks. Gasoline stores are centralized, purchased in quantities, and delivered by the charge ticket system, each ticket showing the amount of gas or oil, the number of the vehicle and the record of mileage. The same ticket system is used in the case of repairs, parts and accessories. These tickets are sent to the department of accounts daily, or a daily report of them. These transactions are posted to the accounts, and the work of posting automatically closes the control cost accounts, so that the detail and control cost of operating each individual piece of equipment is known at all times.

A complete accounting includes the rental feature that the system provides, which is of unusual value. A schedule of rentals is prepared based upon the mileage and character of work, size of the equipment, and life. The daily rental for each piece of equipment includes both operating and replacement expenses.

This rental feature constitutes an income for the Motor Transport Fund, and is an expense to the department using the equipment. Appropriations are made in the departmental budgets for "rentals of equipment," and no appropriation is required for the Motor Transport Fund, either for maintenance or for replacement.

The following chart presents a picture of the principal accounts of the Motor Transport Fund.

The rentals constituting the income of this fund are divided into two parts, or they arise from two sources in many cases. The departmental rentals are provided for in the budget. The charges for rentals in special funds are not included in the departmental budgets.

Many cities carry on construction under the provisions of special funds, and when such character of operations require the use of the equipment of the city, it is charged to the regular rental as per the prepared schedules.

The expenses of this fund are divided into two classes: replacement expenses,

and the regular maintenance expenses, including the administrative expenses, which usually cover the indirect expenses of the municipal garage. Each piece of equipment is represented by one control account and as many detail accounts as there are classifications of the expenses. In the control ledger of this fund, master control accounts of the expenses and revenues are maintained. These accounts show the total expenses for all of the equipment as well as the rentals.

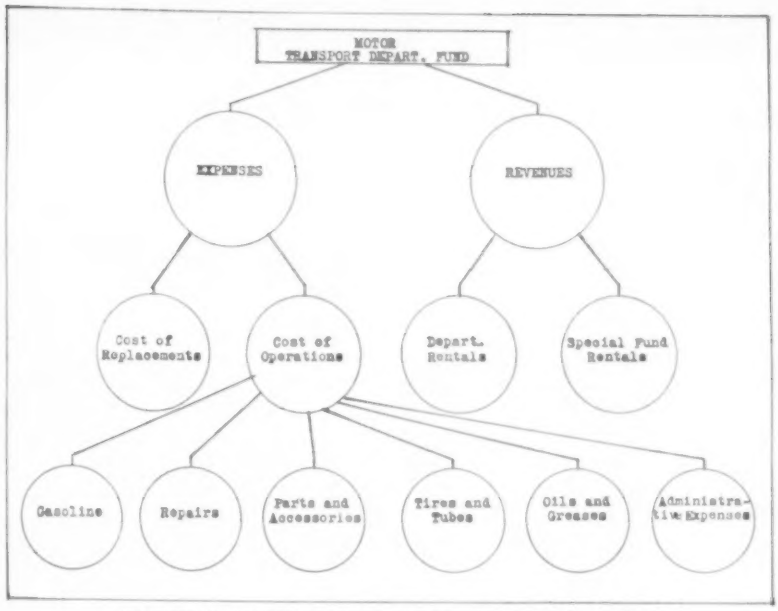
The advantages are apparent. In the first place, information of the individual detail cost of operating each piece of equipment is available day by day. The mileage statistics covering each piece are posted in the statistical division of accounts.

With the knowledge of the mileage of each piece, and the detail cost, the unit cost per mile may be worked out for each piece of the equipment in monthly statements. Such cost statements have great significance in the analysis of operations. Defects, weakness, condition, and evidence of waste are known or detected.

Another advantage is that the detail cost information of the operations of the equipment maintained under the system places before the purchasing agent and executives intelligent information for selecting the make, size, and character of new equipment best adapted for the work at hand. One city manager made the statement that this feature enabled him to save the sum of $15,000 in the purchase of new equipment in one year.

Such a system of handling the operations of the transportation equipment has obsoleted the methods provided under the cash-book systems. It provides that all of the costing work is to be done in the centralized department of accounts and not by the departments using the equipment.

Under the old methods, coordinated detail cost could not be satisfactorily maintained, showing at all times the individual cost of operating each piece of equipment, all tied into the general controls and financial accounts.



PRINCIPAL ACCOUNTS OF THE MOTOR TRANSPORT FUND

Should the Central Library Be in the Municipal Building?

MAYOR Charles G. Phillips, of Montclair, N. J., recently requested the trustees of the Montclair Free Public Library to assemble information on the advisability of including a central library in plans for a municipal building.

No complete list of such buildings in cities the size of Montclair was to be found, and almost no information was in print on the workability of such combinations. The library trustees, therefore, undertook an investigation in the process of which they asked a number of outstanding librarians for statements of opinion on the subject. The result of the investigation and a digest of these statements, as provided by Miss Margery Quigley, Librarian of the Montclair Free Library, follows:

Extent of use:

About 12 towns with a population of under 10,000 have this type of building. Many county library systems use the plan for their branches in the smaller, outlying places. The only cities with population over 10,000 shown to have their libraries in municipal buildings are Sault Sainte Marie, Ont.; Framingham, Mass.; and Rochester, N. Y., where the arrangement is only temporary, with plans for a new separate library building. Grand Rapids, Mich., and San Francisco, Calif., have discarded the plan.

Advantages of a library in a municipal building:

1. Economy in—
   a. Initial cost (though this is not so great as usually predicted,
   b. Upkeep
2. Increased library service and contacts with—
   a. Municipal departments
   b. Persons coming to City Hall on business

Disadvantages:

1. Those growing out of basic function of a library, or influencing the library as an educational institution;
2. Those that are purely physical, affecting the library as a tenant;
3. The effect on standards, or upon the library as an employer.

The library is an educational institution, and not one of the city's miscellaneous administrative activities. It is important enough to stand alone. The next ten years will see an exceptional development in the uses and scope of its work. The housing of the library in a municipal building would delay recognition of its unique function as an educational force in the community.

The library as a tenant requires adequate room for expansion such as cannot be provided in a municipal building. It requires control over hours, heat, ventilation, repairs, etc., and later, over space and clerical work, such as cannot be guaranteed in a municipal building. The building plan of a library calls for features opposed in principle to those demanded by a municipal building, as quiet, light, and air on all sides, elimination of possible sources of danger to children, such as fire-engines and parked cars.

The library as an employer has found that when it has been housed in a municipal building, staff standards have been lowered by pressure from political sources; by example; by encroachment of other departments upon its space, upon the time of its clerical staff, and upon its quarters for entertainment purposes.

Architects of municipal buildings, and municipal authorities, appear, in the main, opposed to incorporating institutions and organization headquarters in municipal buildings.

The study shows general agreement upon these two points:

1. The frequent desirability of erecting a library as part of a group of civic buildings, but in a building of its own.
2. The desirability of a branch library in the municipal building, with space for study and for about 10,000 volumes, but with no offices and no children's rooms.

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THE MONTH IN PUBLIC HEALTH

Conducted by JAMES A. TOBEY, Dr. P. H.

The Summer Health Round-up

THE summer is an ideal time to ascertain the physical condition of all children who are to enter school for the first time in the fall. Such a summer round-up of pre-school children is advocated by W. F. Walker, Dr. P.H., of the American Public Health Association, in his *Health Officers' News Letter* for May 13, 1929, in which he declares that it should be the ambition of every health officer to get all the children of his community examined, preferably by their family physicians.

Many individuals and organizations can be interested in this summer round-up of pre-school children. Parent-Teacher Associations will be particularly active in aiding, as their national congress had urged the matter for several years. School authorities will also be eager to help, for they realize that a healthy child makes the best pupil.

Typhoid Fever in Our Large Cities

IN 1927 no deaths from typhoid fever occurred in 7 of the 31 American cities with populations of more than 100,000. Excellent as was the record, it has been exceeded in 1928, when there were 9 cities without a single death from this disease. Exactly a year ago we reported in this department the typhoid record for 1927, and we are now able to give it for 1928, as the seventeenth annual report on this disease has appeared in the *Journal* of the American Medical Asociation for May 18, 1929 (page 1674).

Of the nine cities having no typhoid deaths in 1928, four—Lowell, Lynn, New Haven, and Springfield—are in the New England group, and two—Elizabeth and Yonkers—are in the Middle Atlantic. This is the third consecutive year that Yonkers has had such an enviable record, and the fifth in its history. It is the second consecutive year for New Haven and Springfield, while Lowell had a clear record once before, in 1925. The other three cities showing zeroes in their typhoid rates are Duluth, Tacoma, and Youngstown.

All the large cities of New England, the East North Central, West North Central, Mountain, and Pacific sections are on the honor roll, comprising those municipalities that have typhoid death-rates of less than 2 per 100,000. In all, there are 45 such cities, or two more than in 1927. Twenty-five of these cities have rates lower than 1.0, as against twenty in 1927. The 627 typhoid deaths in 1928 give a combined rate of 1.89 for 74 cities, which is a little lower than in 1927, when it was 1.96.

Having mentioned the cities with the best records, it is also appropriate to cite those having the worst. In the third rank, the cities with the rates of 10.0 or more, there are only four cities. They are Nashville (15.0), Memphis (11.6), El Paso (10.2), and Oklahoma City (10.0). In the second rank, ranging from 5.0 to 9.9 deaths per 100,000, are six southern cities, Atlanta, New Orleans, Birmingham, Fort Worth, Houston, and Dallas, and one northern one, Erie. The southern sections of the country show much higher rates than do the others, though one southern city, Norfolk, is in the honor class, and several are in the first rank.

These data are of great significance, as typhoid fever is one of the diseases which are absolutely preventable. It is spread by bodily discharge of patients or healthy carriers; it is controlled by providing safe water-supplies, safe milk, and proper sewage disposal, by eliminating flies, and by controlling patients and human carriers. There are few valid excuses for the existence of typhoid fever in these days, even in the summer, when the disease is usually more prevalent.

Diphtheria in Our Large Cities

DIPHTHERIA is another disease which has shown a decline in the death-rate in the cities of more than 100,000 population in 1928, though the decrease is less marked than in the case of typhoid fever. Diphtheria is, however, just as controllable as is typhoid and there is no scientific reason for any deaths from this cause. Data on diphtheria are given in the *Journal* of the American Medical Association for May 25, 1929, as the sixth annual report on this subject.

The total diphtheria death-rate for these large cities was 9.23 per 100,000, as against 10.43 in 1927 and 13.25 in 1923. The Mountain and Pacific states had the best rate, 4.67, and the East North Central states the highest, 11.29. The Middle Atlantic states were also high, with a rate of 10.80.

Only two large cities, Grand Rapids and Tacoma, had no deaths from diphtheria in 1928, though eleven had rates of 2.0 or less. The highest rates were in Newark (20.0), Jersey City (18.8), Yougstown (16.6), and Detroit (16.2). There were ten cities with rates of 14.6 or more.

It is interesting to note that Tacoma had no deaths from either typhoid or diphtheria, but Youngstown, with no deaths from typhoid, had a relatively high mortality from diphtheria.

Progress in Public Health

THE death-rate in the United States reached the lowest point in our history in 1927, according to Harry H. Moore, Ph.D., who contributes a review of progress in public health and medicine during 1928, to the *New England Journal of Medicine* for May 16, 1929. This 1927 death-rate was only 11.8 per 1,000 population. In 1928 provisional figures show an increase to 12.3.

Infant mortality was at its lowest figure in 1927, when the rate was 65 deaths for infants under one year of age per 1,000 live births. Tuberculosis mortality showed a gratifying decrease in 1928, as did also death-rate from many other communicable diseases. On the other hand, deaths from diabetes increased, according to the records of the country's largest life insurance company.

Dr. Moore points out that there is still a lack of trained personnel and an inadequacy of funds among health departments in the United States. As a significant forward step, he reports the establishment of 87 new county health departments in 1927 and their continuance in 1928. He also mentions a decrease in the number of cases of venereal disease reported to state health departments in 1928.

An increase in the number of physicians in the United States, from 149,500 in 1927 to 152,000 in 1928, is reported by Dr. Moore, and he states that there were 6,852 hospitals in the country in 1928, with 892,934 beds, or nearly 40,000 more than in 1927. Clinics have likewise increased in number. A number of studies on the cost of medical care have been inaugurated under the auspices of a committee of which Dr. Moore is executive. A five-year program has been formulated for these investigations, which ought to be productive of valuable data on the price we pay for curative medicine, an expense which obviously could be reduced by greater expenditures for, and more effective procedures in, preventive medicine.

The County as a Health Unit

THE advantages and disadvantages of the county as the unit for health administration are well set forth in an article by M. E. Barnes, M.D., Dr. P. H., in the *Kentucky State Medical Journal* for April, 1929.

Among the advantages by Dr. Barnes are: (1) it (the county) affords a logical base for (public health) operations; (2) it is practical; (3) it is economical; and (4) it facilitates the coordination of effort by auxiliary organizations. As an example of the economics of such a department, the writer tells of one county health organization costing the taxpayers only a little over 2/10 of a mill on the tax duplicate, or 43 cents per capita annually. The control of three smallpox outbreaks more than repaid this expense by saving the people doctors' bills and funeral expenses.

The disadvantages inherent in the

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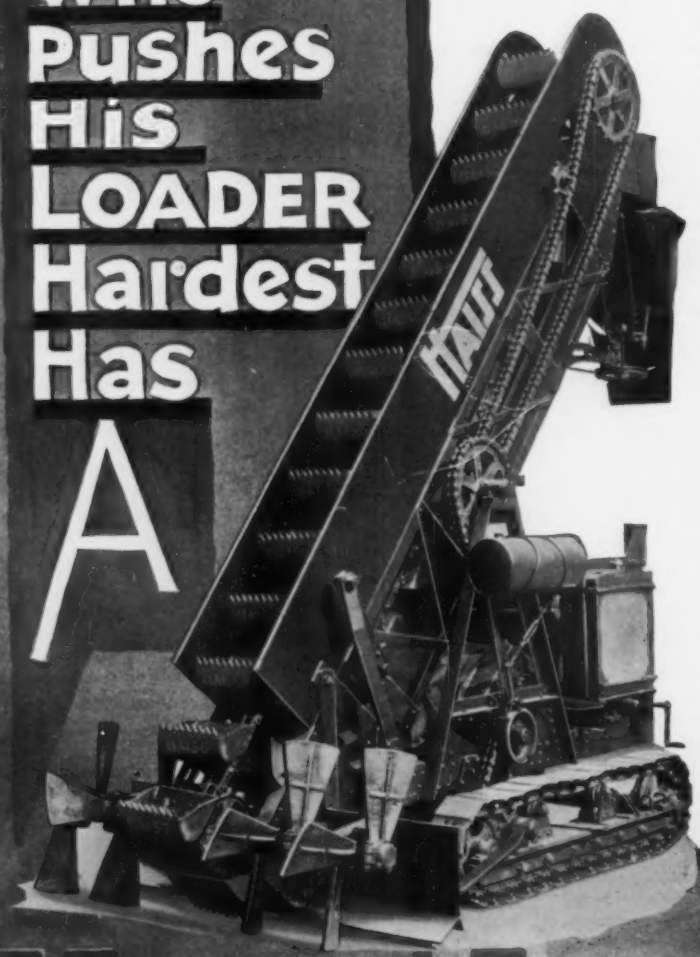

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county as a health unit are stated to be: (1) political influence; (2) too small a base for handling certain important health problems; (3) possible lack of reasonable uniformity in dealing with health problems; (4) the effects of inter-town rivalry; (5) inaccessibility to all communities needing service.

Although Dr. Barnes does not weigh the advantages against the disadvantages, it is apparent that in many if not most parts of the country, the benefits would be superior to the disadvantages from such an organization. In the *New York Journal of Medicine* for June 1, 1929, there is a strong plea by Dr. G. H. Turrell for public health work to be undertaken by county medical societies. In New York thirty-five counties are now receiving financial aid from the state for public health work, according to the State Charities Aid Association *News* for May, 1929.

Summer Courses in Public Health

COURSES in various phases of hygiene and public health are offered in the summer sessions of a considerable number of universities. These courses have been listed in the *American Journal of Public Health* for May, 1929 (page 586), from which the following information relative to schools giving courses from July on, has been taken:

University of California, July 1—August 10
University of Chicago, July 25—August 30 (second term)
Columbia University (Teachers College) July 8—August 16
Duke University, July 22—August 29 (second term)
Cornell University, July 6—August 16
Harvard University, July 8—August 17
University of Illinois, June 17—August 10
State University of Iowa, July 22—August 24 (second term)
Johns Hopkins University, July 1—August 9
Massachusetts Institute of Technology, July 1—August 13
University of Michigan, June 24—August 3
Michigan State College, June 25—August 2
University of Missouri, June 10—August 2
New York University, July 1—August 17
Ohio State University, July 25—August 30 (second term)
University of Pennsylvania, July 1—August 10
University of Rochester, June 26—August 2
Rutgers University, June 24—August 2
Stanford University, June 20—August 31
Syracuse University, July 2—August 9
University of Virginia, July 29—August 30 (second term)
University of Washington, July 26—August 29 (second term)
Western Reserve University, June 24—August 2
University of West Virginia, June 7—July 29
University of Wisconsin, July 1—August 9

It is indeed a healthy sign when as many institutions as this are giving courses in preventive medicine and public health. Persons interested in the subjects at any of these universities can undoubtedly secure complete information direct from the registrars.

Municipal Liability Concerning Bathing Beaches

By A. L. STREET

RECENT court decisions which have adjudged cities to be liable for accidents to bathers in parks and other places where bathing facilities are furnished by cities to the public, have raised two important and interesting questions: What constitutes negligence in maintaining bathing beaches? And how should warning be given?

There is no hard-and-fast rule of law which declares whether or not actionable negligence exists under a given set of circumstances. The law merely says that one must ordinarily use that degree of care, in operating premises under his control, to avoid injury to persons rightfully upon those premises, that a person of ordinary prudence would reasonably be expected to use under the same circumstances. This rule applies to cities, as well as individuals, excepting where cities are exempted, despite negligence, on the ground of being engaged in the performance of a governmental function. This discussion presupposes non-existence of such immunity from liability.

Whether negligence existed in a given instance is usually determined by a jury as a question of fact. And usually we assume a jury in a case of this kind would inquire whether or not the particular bathing beach was operated according to approved practices governing such places. For example, it might be found to be negligent to fail to provide the usual rope or cable strung along posts to indicate a drop-off in the beach, or some other suitable warning of the existence of a dangerous depth. In the case of beaches patronized by many people, it might be held that due care would require the maintenance of lifeguards in boats during busy hours. In short, the writer conceives it to be the duty of those in charge of a bathing beach to foresee such accidents as are *apt to happen in the natural course of things* if precautions are not taken to guard against injuries or drowning. What particular precautions are required vary according to the character of the beach. Warning might be said to be required where the water reaches a dangerous depth close to shore, when no notice or warning would be required in case of a gradually sloping beach.

Perhaps, children too young to appreciate dangers incident to using a beach should be excluded unless accompanied by persons old enough to understand the risks.

With these suggestions, about the only other observation that occurs to the writer is that those in charge of recreational facilities should use the same degree of care for the safety of the public that they would use to safeguard their own children, brothers or sisters. The use of such care will ordinarily suffice to protect the city against liability. The use of less is dangerous.

Usually posts in the water with the word "danger," or some other word of similar import, ought to suffice. But where wholly feasible, and where the beach drops off sharply, it would seem that signs ought to indicate approximate depths of, say, three and five feet and the place where the water becomes dangerously deep. Or an equally effective means of warning is to rope off the part of the beach that is safe and put up signs indicating that the water is dangerously deep beyond the enclosure thus made.

An International Clearing-House for Housing Information

THE International Housing Review, a new illustrated monthly publication designed to cover all important matters bearing upon housing problems and housing development, has been announced by the International Housing Association as shortly to appear in German, French, and English from the headquarters office of that agency at Frankfort-on-the-Main.

This periodical, to be circulated among the entire membership of the Association is but one of the publications proposed. Developments in certain particular phases of housing are to be separately reported in special bulletins; in fact, the first of these has already appeared. It is the reprint of an address on "The Housing Policy of Frankfort on the Main," given by Town Councillor E. May (an expert in the matter, and a member of the Association's working committee) at the International Housing Association Constituent Assembly held in that city on January 12, last, and attended by representatives of 13 countries. It is an attractive brochure, profusely illustrated, and printed in the three langauges.

The interesting detailed report of the Assembly meeting, another new document, gives account of the complete, many-sided program of the Association for the future, of which the publications represent one feature. One of the plans is for a great international congress to be held every three years. But the Association sees its greatest task as that of close and continuous collaboration with all the different countries from which it proposes to gather the developing facts and experiences in housing, and to which in turn it proposes to make available the whole body of such developing material. A number of the most important experts in the housing field in different countries are now reporting developments of this nature.

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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, *Attorney at Law*

Uncovered Junk Yard Held to Be a Nuisance.—In the case of Yaffe vs. City of Fort Smith, 10 S. W. 2d, 886, the Arkansas Supreme Court ordered that the owner of a junk yard cover it, so as to prevent the accumulation of stagnant water in receptacles in the piles of old material. It was shown that mosquitoes were bred in such accumulations of water. In default of so covering the yard, the owner is to be required to remove the junk.

He failed to defeat the suit under contentions that he established the yard before the complaining neighbors utilized the adjacent properties and that it would cost him a large sum of money to remove his plant. The Court said:

"Appellant's business has been established for a number of years, and at the time it was established it was probably not an interference with the rights of any one. But it has become so because of the growth of the city, and having become so, the private rights of appellant must yield to the public good."

Five Months' Delay Barred an Attack Upon a Paving Assessment.—A property owner, although notified of pending proceedings to levy paving assessments, made no objections before borough authorities and did not appeal to the circuit court from their order. But five months after the assessments were confirmed he sought to have the proceedings reviewed in the New Jersey Supreme Court (Pico vs. Borough of North Arlington, 143 Atl. 861). Holding that his right to a review was lost through undue delay, that Court applied the following declaration made in an earlier New Jersey case:

"A person whose rights were affected by the act of the Common Council under this petition could not remain quiescent until a large sum of money had been expended by color of it and then invoke the aid of the law to throw the burden upon the entire community. The law requires diligence, and a party who stands by and sees a work of this character in the course of construction, attended by the incurrence of indebtedness or the expenditure of money, waives his right to take those objections, which, if properly interposed, would have stopped the work and saved the expense."

City Held Not Liable for Fall of Decayed Tree Upon House.—An elm tree 60 feet high and 11 feet in circumference at the base fell because of decayed condition in the base, damaging a house on abutting property. The tree stood partly in sidewalk space and partly in the street proper. Holding that there was no liability, the Massachusetts Supreme Judicial Court said in the case of Cody vs. City of North Adams, 164 N. E. 83:

"No question arises in this case as to the duty of the tree warden to remove a tree that stands in a public highway and is dangerous to public travel, nor is there any question as to the liability of a city or town to a traveler on the public highway who is injured by a public shade tree. The sole question in the case stated by the parties is the liability of the city of North Adams for the injury caused to the petitioner's house by the fall of the tree.

"Under the statute (G. L. c. 87, sec. 3) the tree could not be removed by the commissioner of public works until after a public hearing at which the parties interested might have an opportunity to be heard. As there was no such hearing, the remedy given to the party injured in her property does not apply. . . .

"The petitioner contends that, under the statute, the commissioner was negligent in failing to remove the tree. We do not agree with this contention. The decay was in the trunk of the tree, near its base, and there was nothing to show that this decay was visible. Even if the contention of the petitioner in this respect were true, she could not maintain her petition. A public hearing was necessary, and as this provision of the statute was not complied with, the question of the negligence of the officer was not material."

Indexes to Legal Decisions

The items appearing in this Department each month are classified by subjects in THE MUNICIPAL INDEX. The 1928 edition of the Index, on pages 110 to 115, covers the legal items published during 1924 to 1927 inclusive, while pages 94 to 97 of the 1929 Index list the items for last year.

Negro Citizens Establish Their Right to Use Libraries.—Neither the constitution nor the statutes of West Virginia sanction exclusion of persons from public libraries on acount of color or race, according to the decision of the West Virginia Supreme Court of Appeals in the case of Brown vs. Board of Education of Charleston Independent School District, 146 S. E. 389. Said the Court, in part:

"A public library is a library to which the general public has free access. 32 Cyc. 1248. It is said, however, that the maintenance of a public library for the joint use of white and colored citzens would be inconsistent with the public policy of the state, established by its laws, institutions, customs, practices, and traditions, of separating the races, and that in keeping with this policy, the legislative acts, under consideration, should be construed so as to uphold the action of the Board in denying to Negroes the use of the Charleston Public Library. In other words, it is contended that the Legislature meant to provide for the establishment of a school library, which should be under the control of the Board of Education as a part of the public school system, and not a public library as the statutes declare. . . .

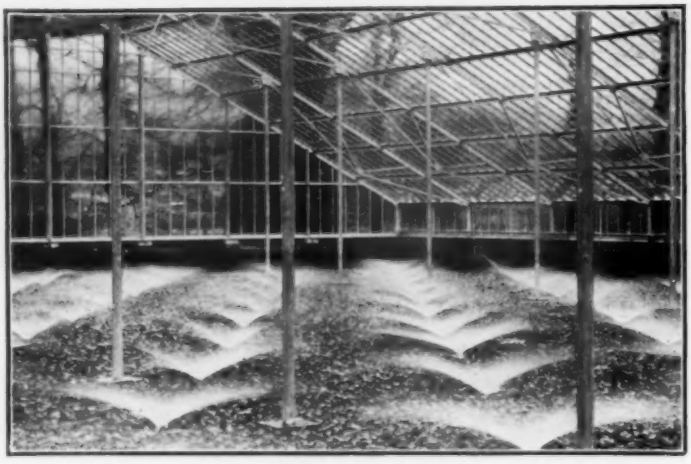
"It is sought to justify the action of the Board of Education also on the ground that the governing body of the public library may in the exercise of the police power of the state limit its use to 'white school children and white citizens.' The principle relied on has been applied by the courts in approving rules and regulation by railroad companies providing separate coaches for white and colored passengers.

"Granting that the Board of Education may provide separate departments for white and colored persons in the library building, we do not think it is vested with such regulatory powers, either under the statute or under the police power of the state, as would justify it in excluding colored persons therefrom. The petition, in our opinion, states a case for relief."

Property Owners Whose Objections Were Not Timely Held Estopped to Complain of Irregularity in Street Improvement Proceedings.—Had timely objection been made, property owners could have enjoined paving assessments and bonds anticipating the same, because the paving contract was invalid on the ground that a councilman who participated in its award was attorney for the contractor. But property owners who made no objection until after their property had been benefited by the improvement, and who did not offer to pay for such benefits, were not entitled to injunctive relief. That is the substance of the principal points decided by the Georgia Supreme Court in the case of Cochran vs. City of Thomasville, 146 S. E. 462.

It was further decided in the same case that statutes providing for assessments for street improvements were not invalid because providing for 7 per cent interest on the assessments and only 6 per cent interest on bonds issued against such assessments. The following are abstracts from the opinion of the Supreme Court:

Master Construction Glass-Overs for Sludge Beds



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In the case of sludge drying beds, a greater drying efficiency is also secured, the average outdoor drying in the vicinity of New York City, being around seven dryings per season. In some of our Glass-Overs, this has been raised from 14 to 25 dryings, 20 being a generally accepted average.

The Plant illustrated is at Totowa, N. J., and is a particularly interesting one in that it has two Glass-Overs, one of which houses a sprinkling filter, and one the sludge bed.

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"Neither of these rates of interest exceeds the legal rate fixed by law, which is 7 per cent per annum, and it was therefore competent for the city of Thomasville to provide sufficient interest on the assessments to take care of the expense to the city incident to the paving, issuance of bonds, etc. . . .

"We hold that under the facts and circumstances of this case it was illegal for a member of the above firm, who was also a member of the City Council of Thomasville, to participate in the execution of a contract between the city of Thomasville and the Wesco Company, employed to do the paving in this case. But the plaintiffs cannot come into equity and set up such facts in order to avoid the payment of the assessment taxes against their property for the pavement of the streets in question, without offering to do equity by paying for the benefits received by them, where it appears that they saw the improvements which were being made upon the streets, and that such improvements necessarily resulted in the enhancement of the value of the plaintiff's abutting property, and that, knowing these facts, the plaintiffs took no steps, before the work on the streets was commenced or while the work was being done, or for some months after the work was completed and accepted by the city, to enjoin the issuance of the bonds, and to enforce the contentions which they now make."

Municipal Authorities Have Discretionary Power in Choosing Character of Fire Apparatus to Be Acquired.—Concerning the right of taxpayers to control municipal action in the purchase of fire apparatus, the New Jersey Supreme Court said in the case of Simmons vs. Mayor and Council of Borough of Wenonah, 143 Atl. 73:

"It is impossible for a municipality to draft specifications for fire apparatus which would apply to all fire apparatus, for the reason that each manufacturer makes his apparatus as a rule under patents or designs different from those of other manufacturers. It is these differences which support the claims of the superiority of apparatus made by each manufacturer over that manufactured by his competitors. A municipality has discretion, within proper limits, as to the apparatus which it will purchase."

Cemetery Ground Held Not Exempt from a Paving Assessment.—The city of Harrisburg, Pa., paved a street bordering a cemetery and levied an assessment against the cemetery association, which unsuccessfully opposed the levy. (City of Harrisburg vs. Harrisburg Cemetery Association, 143 Atlantic Reporter, 111.)

The Association relied upon a Pennsylvania statute making all land subject to taxes and municipal claims excepting, among other classes of property, "places of burial not used or held for private or corporate profit." But this Association maintains a permanent improvement fund, in which there had been accumulated more than $150,000, and that was held by the Pennsylvania Supreme Court to stamp the Association as being operated for "corporate profit," if not for "private profit."

The second point decided in the case is that a charter provision exempting this cemetery from "taxation" did not exempt from the local assessments in question. "Paving claims and other special assessments are not taxation, however, though they are in some respects similar."

The third joint adjudged in the case that a statute declaring that lots conveyed should be held for sepulture alone and not subject to execution, would not exempt unsold lots from execution in this case.

Cities Held Empowered to Regulate the Sale of Gas-Using Appliances in the Interest of Public Health and Safety.—The principal provision of a Baltimore ordinance reads: "No tubing, appliance, appurtenance or device for use with, by or for the combustion of manufactured (illuminating) gas shall be sold or offered for sale, connected or installed in the city of Baltimore unless the type, sample or model thereof shall be registered with the Commissioner of Health of Baltimore City." Other sections provide for testing such appliances, etc.

The validity of the ordinance was supported by the decision handed down by the Maryland Court of Appeals in the case of Portsmouth Stove & Range Co. vs. Mayor and City Council of Baltimore, 144 Atl. 357.

Among other points decided, it was held there was no unconstitutional delegation of the power to test appliances, etc.

As to the validity of the ordinance, in the broader aspect, the opinion says:

"Gas appliances are purely mechanical, and may not be in their nature, when well constructed and properly installed, dangerous. But, when we consider that they are the agencies or instruments through which gas, manufactured and natural, is made available to the user, and that raw gas may cause asphyxiation and explosions, and that imperfect or incomplete combustion with insufficient ventilation may result in deadly carbon monoxide poisoning, and that gas is of such general use for domestic purposes, there can be no other conclusion than that the ordinances complained of are designed to 'safeguard and protect the health and safety of the people of Baltimore.'"

State Commission Interference with Municipal Affairs Held to Be Unconstitutional—Competitive Utility Rates Not Necessarily Identical.—A section of the Utah Constitution forbids delegation to special commissions, etc., "power to make, supervise or interfere with any municipal improvement, money, property or effects, whether held in trust or otherwise, . . . or to perform any municipal functions." This provision renders void statutes interpreted as giving the Public Utilities Commission authority to fix rates chargeable by municipally owned public utilities, holds the Utah Supreme Court in the case of Logan City vs. Public Utilities Commission of Utah, 271 Pac. 961.

The Court further decided that even if the Commission had had constitutional authority to control rates chargeable by a city operating an electric plant, it would have had no power to impose the same rates charged by a competing private electric plant, without finding that a lower rate would be adequate to the city's requirements. The Court said:

"Let it be assumed that the Commission may fix a minimum as well as a maximum rate, still the rate must be fixed primarily with relation of the utility to the public, and not primarily with a view that, if the one cannot give efficient and adequate service at a particular rate, neither should the other be permitted to do so, regardless of whether it was or not for public good to permit it. If taxpayers and citizens of a town or city desire through their municipality to own and operate their own plant for their own use and for the use of the municipality at cost, they ought not to be denied the right or privilege because a competitive and privately owned utility, operating a plant for gain and profit at the same place may not be able profitably to furnish the product at a rate or charge lower than its standard rate, or at a rate proposed by the municipality.

City Held Entitled to Full Reimbursement for Loss Resulting from Negligent Injury of a Police Officer by a Motorist.—A police officer in Oakland, Calif., was injured in the line of duty through negligent driving by a motorist. He was paid by the city, not merely the limited amount provided for by the California Workmen's Compensation Act, but full salary. The city then sued the motorist for reimbursement. In the case of City of Oakland vs. Lyckberg, 272 Pac., 606, the question involved was whether the trial judge had rightly ruled that the automobilist's liability was limited by the schedule of compensation allowed by the Compensation Act. Holding that the city was entitled to full reimbursement, the California District Court of Appeal said:

"The salary of the officer was fixed by virtue of a statute authorizing the same to be fixed, and that salary was an incident to the title to the office and not to the . . . performance of the duties of the office. . . . It follows that a public officer having the legal title to his office is entitled to the salary whether he performs the duties thereof or does not. It also follows that, by virtue of existing laws, the city of Oakland is obliged to pay its policemen whether they are confined to their beds by reason of physical injuries or are at work."

Ordinance Limiting Speed of Railway Trains Through Town to Five Miles Per Hour, Held Not Unreasonable on Its Face.—The mere fact that an ordinance of the town of Portageville, Mo., limited to five miles per hour the speed of trains operated through the town, was held by the Springfield, Mo., Court of Appeals not to be void on its face as being unreasonable. (Gibson vs. St. Louis-San Francisco Railway Co., 9 S. W. 2d, 84.) The Court intimates that particular conditions might make such limitation unreasonable, but holds that it is incumbent upon one who attacks an ordinance of this kind to show the circumstances that make the measure void.

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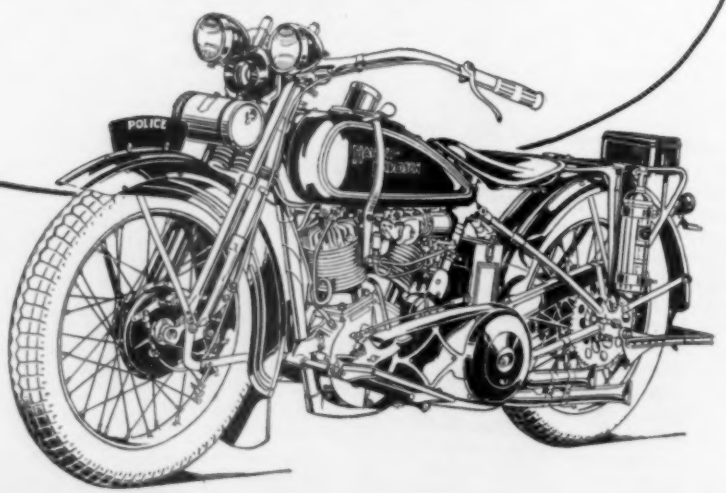

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MUNICIPAL AND CIVIC PUBLICATIONS

Orders for books reviewed in this department will be filled promptly by THE AMERICAN CITY. Pamphlets, reports and all other publications should be ordered direct from addresses given. Prices do not include postage unless so stated.

Governmental Purchasing.—By Russell Forbes, Secretary, National Municipal League, and Governmental Research Association; Director, Municipal Administration Service; Lecturer on Municipal Government, New York University. Harper & Bros., New York. 1929. 370 pp. $5.00.

Although centralized purchasing is well established as an important contributing factor in many public administrative systems that are representative of good government, its literature, of the more comprehensive sort, has been none too extensive; and an authoritative volume like the present one is a valuable addition, gathering together the various aspects of the subject and producing a rounded picture, with a wealth of incidental and useful detail. The author has had long contact with this topic, and the field-work basis of his book was laid while he was assistant secretary in charge of research for the National Association of Purchasing Agents. His acquaintance, and the scope of this treatise, extends to municipal, county, state and federal purchasing systems. While he does not attempt to set forth a model procedure for all circumstances, he presents a very practical treatment, with concrete suggestions and a judicious number of illustrative forms. Portions of Chapter IV appeared in THE AMERICAN CITY for June under the title, "The Ideal Purchasor for City or County."

Institute of Municipal Affairs, Montpelier, Vt.—The complete proceedings of the annual Institute held under the auspices of the Bureau of Municipal Affairs of Norwich University in January, have appeared as No. 23, Whole No. 579, University publications, in a 60-page volume. Among important matters recorded is the formation of a Vermont conference on municipal planning which followed a session at which important addresses on city planning and zoning were presented by Prof. K. R. B. Flint, Bureau Director, E. T. Hartman, Consultant, Planning Boards of Massachusetts, and others. Municipal finance, the city manager plan, and public airports are other important topics represented. (Apply to the University, Northfield, Vt.)

Our Zoo and the Zoos of Other Cities.—So many statements have been made as to the largest, best, and oldest zoological gardens in the country, that the Chamber of Commerce of Cincinnati (which has a zoological garden for which its citizens have no cause for apology) decided to send out a questionnaire on the subject. This was addressed to all cities of 100,000 population and over. The information thus acquired has been compiled in the form of a 25-page multigraphed study by Howard M. Wilson, Manager, Civics Affairs Department of the Chamber, which gives also a detailed account of the Cincinnati institution. (Apply to Mr. Wilson.)

The Conduct of Playgrounds.—A practical guide for playground workers, designed to place at the disposal of the director the experience of recreation systems throughout the country in the conduct of their programs. New play leaders and officials launching new play programs will find the manual particularly valuable. 56 pp. 20c. (Apply to Playground and Recreation Association of America, 315 Fourth Ave., New York.)

Abstract of a Report on the Selection of Patrolmen in Syracuse, N. Y.—The Municipal Administration Service, 261 Broadway, New York, presents in 12-page multigraph form an abstract of the report of the above title, already reviewed in these columns, as prepared by the Municipal Research Commission of Syracuse, Orin F. Nolting, Secretary. (Apply to Municipal Administration Service.)

Simplification of Highway Traffic.—By William Phelps Eno. The Eno Foundation for Highway Traffic Regulation, Inc., Saugatuck, Conn. 1929. 205 pp.

A new book by one who has rendered such outstanding service as Mr. Eno has in the improvement of street traffic regulation, deserves the careful study of traffic engineers and police officials. But unless Mr. Eno's recommendations are considered in connection with those of the National Conference on Street and Highway Safety, the American Engineering Council, the Joint Board on Interstate Highways, the National Safety Council and the American Standards Association, we fear that the publication of this book may confuse the issue.

Mr. Eno makes a very proper plea for standardization of traffic regulations, and to that end he urges universal adoption of his General Highway Traffic Police Regulations. These, however, and other proposals in Mr. Eno's book, differ in many important details from recommendations carefully worked out by thoroughly representative groups. The organizations just mentioned are working in harmony with each other, and their standards are gaining headway steadily in state laws and local ordinances. They appear, therefore, to have the right-of-way, as a guide to future public action, over the advice of any individual, no matter how expert or disinterested he may be.

In his service as a publicist and leader, convinced of the soundness of his doctrine, Mr. Eno's pioneer work in the field of traffic regulation may be compared with that of Benjamin Franklin in the field of national government. When he found it necessary to make some concessions in the Constitutional Convention of 1787, Franklin is said to have announced his belief that the combined wisdom of many is a better guide to joint action than the infallible judgment of one. May we not hope for a similar type of statesmanship from Mr. Eno, in the interest of traffic safety and facilitation?

Automobile Green Book.—The All-in-One Guide.—Road Reference and Tourists' Guide for all states east of the Mississippi River, and for eastern Ontario, Quebec and the Maritime Provinces. 1929. 932 pp. Contains 96 pp. of detail maps, 800 city traffic maps, 2 large key maps and mileage charts; covers 60,000 or more miles of charted roads, showing the Federal and State Highway numbered systems; contains also an abstract of automobile laws, a golf club directory, ferry schedules, an index of principal cities and towns, and hotel and garage information. $3.00. (Apply to the publishers, Scarborough Motor Guide Co., Boston, Mass.)

L'Avenir de Paris (The Future of Paris).—By Albert Guérard, Professor of Literature at Stanford University in charge of the course on French Civilization. Preface by M. Paul Bouju, Prefect of the Seine. The Introduction compares French and American urban life. Various divisions of the subject which are presented in enlivening style are: the preservation of the beauty of Paris; the growth of the city; transportation and traffic; industry; the port of Paris, and the municipal organization and administration. 366 pp. 30 francs. (Apply to the publisher, Payot, 106, Boulevard Saint-Germain, Paris, France.)

A Dark Day In Chicago.—The smoke nuisance in one large city as presented in reproductions of news clippings and cartoons, is published in a 12-page pamphlet issued by the People's Gas Light and Coke Co. Prominent authorities give their opinions on the menace of soot-polluted air. 2c. (Apply to Municipal Reference Library, City Hall, Chicago, Ill.)

American Concrete Institute: Convention Proceedings, 1929.—The 25th annual convention of the Institute was held at Detroit, Mich., February 12-14, 1929, and is reported in the present substantial cloth-bound volume of 880 pages, wherein are presented 36 papers and 9 committee reports. The latter cover various matters of physical research, specifications, etc. The papers relate to such diverse applications of concrete as bridges, tunnels, dams, culverts, pavements, floors, dwellings, and other buildings, as well as to many problems concerned with materials, mixing, curing and characteristics of concrete, including the development, use, properties and specifications of cast stone. Many diagrams and other illustrations. $10.00. (Apply to the Institute, 2970 West Grand Boulevard, Detroit, Mich.)

Signals Should Move Traffic, Not Stop It.—"Observations of the performance of typical signal installations indicate in a striking way the serious delay to traffic movement that results from makeshift signaling." The authors develop a series of traffic-flow profiles that illustrate exactly what happens at a crossing under variable conditions after the "Go" indication flashes. A 6-page reprint of an article by J. Rowland Bibbins and Herbert C. Lummis, in *Electric Railway Journal*, May, 1929. (Apply to J. Rowland Bibbins, 2301 Connecticut Ave., Washington, D. C.)

Better Street Traffic for San Antonio; Traffic Plan for Great Falls; Reorganizing Reading's Traffic.—These are the traffic surveys of three cities as carried on under municipal administration and directed by the National Safety Council, Earl J. Reeder, Supervising Engineer. Each presents the results of an intensive study of local conditions, with its detailed recommendations based thereon. The technical means for improving the manifold traffic ills are set forth in each case, with illustrations in the form of charts, diagrams, and photographs. Great emphasis is placed upon public educational activities as well as upon the engineering matters involved. 24 pp., 32 pp., and 40 pp., respectively. (For further information apply to National Safety Council, 108 E. Ohio St., Chicago, Ill.)

Municipal Traffic Engineers.—By Burton W. Marsh, Traffic Engineer, City of Pittsburgh, Pa. A 3-page reprint of an article from the May, 1929, issue of THE AMERICAN CITY. It reports new developments in the field of municipal traffic engineering, new appointments and new activities. (Apply to THE AMERICAN CITY, 443 Fourth Ave., New York.)

Auto Camp Guide for Transcontinental Travel.—A 200-page directory with camps listed in the order of their occurrence along routes of travel. The latter are shown under official highway numbers. Equipment, facilities, rates, and seasons are shown. (Apply to Automobile Club of Southern California, 2601 Figueroa St., Los Angeles, Calif.)

Public Opportunities and Facilities for Leisure Time Recreation, Amusement, and Instruction in American Cities.—A report of 120 pages, indexed, based upon a survey made by the Municipal Reference Library of Chicago at the request of the Mayor. Its aim is to disclose facilities provided for these purposes, and especially for adults and adolescents, under municipal and other public auspices in American cities varying from those provided in Chicago. The report is dated 1926. It was previously available only in a very limited edition in typewritten form. Constant demand has occasioned its publication in the present multigraphed form. 50c. (Apply to Municipal Reference Library, Chicago, Ill.)

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The American School and University.—American School Publishing Corporation, 443 Fourth Avenue, New York. Edition of 1929-1930. 463 pp. $5.00.

The second edition of this yearbook reflects the increasing interest in this method of presenting modern progress in meeting the needs and requirements of educational buildings. The number of sections has been increased from ten to fourteen. These include 51 articles under the following divisions: I, Selecting the Site and Planning the Budget; II, Design and Construction of Buildings; III, Modernization, Maintenance and Insurance; IV, Landscaping and Upkeep of School Grounds; V, Buildings and Equipment for Physical Education and Play; VI, Classroom, Office, Library and Auditorium; VII, Home Economics—Cafeteria—Laundry; VIII, Laboratory and Shop. The articles are authoritative, practical, interesting, and well-illustrated.

Sections IX to XIV present valuable lists and directories. The list of Architects for Educational Buildings gives the names and addresses of architects who, during the last five or six years, have designed three or more school and college buildings costing over $50,000 each; there is also a directory of Landscape Architects for University and School Projects, restricted to fellows or members of the American Society of Landscape Architects in independent professional practice, listing three projects for each school or firm. The School Superintendents in cities of 10,000 and over in all of the 48 states are listed, and Section XIII shows the aid that state departments of public instruction are giving to municipalities. Bibliographies on school-building programs and plans are given. There is a list of cities having one or more schools on the platoon plan. The Chemical Index, the list of Distributors of Equipment, and the Alphabetical and Classified Lists of Manufacturers are of great practical value to present-day efficient purchasing departments.

In his Foreword to the book, William John Cooper, United States Commissioner of Education, says: "There is no article in the volume that will not be of great value to some readers; many of them will be of dollars-and-cents value to every administrator of college and school; all of them will be worth while as indicating a stage in our solution of troublesome administrative problems; most of them will furnish inspiration to greater effort."

Major Recreational Facilities Plan, Denver, Colo.—The City Plan Commission of Denver believes that a comprehensive recreational system will be of great benefit to Denver. It here presents a proposal for such a system based upon a careful study of the leisure needs of the entire community and of existing facilities. It also makes suggestions for the carrying-out of the plan, which covers gradual year-to-year development rather than the launching of large, expensive undertakings at present. Realizing that public understanding and public cooperation are essential to all such plans, the Commission now offers the published plan (16 pages with folding map) primarily for the general consideration and constructive criticism of Denver citizens. (Apply to the Commission.)

Brown University Gymnasium.—A 5-page reprint from the *American Architect*, issue of December 5, 1928, illustrates and describes in detail, the design and arrangement of this, the first large unit of a complete new indoor athletic development and athletic field. Clarke and Howe of Providence, R. I., where the University is located, are the gymnasium architects; and Gavin Hadden, who designed the outdoor development, is the consulting engineer. (Apply to the latter, 607 Fifth Avenue, New York.)

The Lehigh Airport Competition.—The Lehigh Portland Cement Co., Allentown, Pa., offers $10,000 in 14 cash prizes for designs for a modern airport, the competition to close November 18, 1929. (See article, page 132, THE AMERICAN CITY, April, 1929.) Complete conditions are contained in an attractive 16-p. illustrated booklet available on request from "Lehigh Airports Competition," care Lehigh Portland Cement Co., Allentown, Pa.

The Empire Municipal Directory and Yearbook, 1929-1930.—With a foreword by Sir Henry Maybury, K. C. M. G., C. B., M. Inst. C. E. Compiled and published by Sanitary Publishing Co., 8 Breams Building, Chancery Row, London, E. C. 4, England. 350 pp. 13 shillings, prepaid.

This is the 47th annual issue of the official directory of local authorities in Great Britain and Ireland. These comprise 62 County Councils, 82 County Boroughs, and 29 Metropolitan Borough Councils, 253 Municipal Corporations, 792 Urban and 646 Rural District Councils in England and Wales; 332 Authorities in Scotland and 163 in Ireland. Leading local governing bodies in the British Overseas Dominions are also included. The work is well arranged for ready reference purposes. It shows the names of all chief officials, including those of clerks, highway engineers and surveyors, water, gas, electric lighting, and sewerage engineers, fire brigade officers and medical and other officers of health. Brief sections are devoted to progress made in public health administration, practical sanitary work, public cleansing, and waste utilization; also in road construction and maintenance; water-supply; sewerage and sewage disposal methods; street lighting and municipal motor transport. The reading text is interspersed with classified advertisements.

The South African Municipal Year Book, 1928-1929.—XXX + 521 pp. W. P. M. Henderson, formerly Town Clerk of Durban, and Francis G. Pay, Capetown, Editors. Francis G. Pay, Pubr., Capetown, or Edward G. Allen, and Son, Ltd., London. 25 s. net.

This new issue of the standard municipal annual of South Africa contains, as past issues have contained, complete statistical data for the municipalities, and comparative statistics relative to 30 selected municipalities. Special sections are devoted to Electric Light and Power; Tramway Undertakings; Engineering Data; Water-Supply Statistics; Fire Protection; Libraries and Motor Transport. The whole "reflects steady progress in every direction" and shows that "in many larger towns big undertakings are in process—principally water-works and electric lighting and power undertakings."

Accident Facts, 1929; Public Accident Reporting; Accidents, A Civic Responsibility.—"Accident Facts—1929" is the general statistical report of the National Safety Council, bringing together in one volume all significant data on the accident situation for the previous year. The sponsors of this report and its predecessors believe that effective accident prevention must be based on a thorough analysis and understanding of accident causes and circumstances, such as is here represented. 50 pp. "Public Accident Reporting" is a 62-page manual devoted to the methods and functions of statistics in public safety programs. It gives accident analysis procedure for various departments and agencies, with appropriate report forms; and the uses of accident statistics in accident prevention. "Accidents, A Civic Responsibility," is a 10-page discussion of community safety promotion. (Apply to National Safety Council, 108 E. Ohio St., Chicago, Ill.)

A Year's Damage By Autos, 1928.—Bulletin No. 63 of the Connecticut State Department of Motor Vehicles, is the annual presentation, by Ethel Usher, Statistician, of automobile accidents in Connecticut. A large number of tables on causes and results of casualties are, as usual, included; and one of the hopeful deductions to be drawn from these is that "motor vehicle accidents are not increasing in proportion to traffic hazards, though the results are more serious." 14 pp. (Apply to the Department, Hartford, Conn.)

Prosperity Reserves.—By Otto T. Mallery. A 4-page reprint from the April issue of *Survey Graphic* which is devoted to the presentation of many aspects of the subject of unemployment and its prevention. Mr. Mallery's contribution to the subject as here reproduced is listed by the Franklin Square library committee among the ten outstanding magazine articles of the month. (Apply to the publication, 112 East 19 Street, New York.)

The Municipal Yearbook, 1929.—Edited by Edwin C. Fairchild; with a preface by the Rt. Hon. Neville Chamberlain, M. P., Minister of Health, and a foreword by Lt.-Col. Rt. Hon. Wilfrid Ashley, M. P. Minister of Transport. Published by Municipal Journal, Ltd., Sardinia Street, London, W.C. 2, England. 1,140 pp. 21 shillings, postpaid.

The 1929 edition of this comprehensive municipal reference work of Great Britain, which has been issued annually since 1897, is widened in scope by the inclusion of information in regard to public utility services. For several years this official annual has contained complete statistics regarding the finances of municipal gas and electricity undertakings, tramways, light railways, motor busses, waterworks, docks and harbors. Similar and complete information is now given regarding undertakings of limited liability companies responsible for public utility supplies and services. All the usual features appear, including the names and addresses of councillors and officers of many hundreds of authorities. The present state of municipal trading, and the multiform services which are undertaken by British, Scottish, and Irish local governments, are shown in a series of tables. There is a review of new legislation, and a summary of local government in 1928.

Problems of Governmental Simplification, Administrative Processes and Fiscal Affairs of the Various Local Taxing Agencies in Chicago and Cook County.—A 31-page booklet printed by authority of the Board of Commissioners of Cook County, comprising a report prepared by J. L. Jacobs for the Advisory Board of Estimate and Apportionment, after a preliminary survey made at the request of the latter, which was appointed in 1928 by the County Board. Various recommendations are included. January, 1929. (Apply to Board of Commissioners of Cook County, Chicago, Ill.)

How Street Railways Are Helping to Solve the Traffic Problem; Electric Railways and the City of the Future.—Two articles in the May, 1929, issue of **AERA**, the magazine of the American Electric Railway Association. The second as well as the first has considerable to do with problems of congestion. The first article is by Mary A. Burke, Statistical Department, and the second by Leslie Vickers, Economist, of the Association. 35c. (Apply to AERA, 292 Madison Ave., New York.)

Reduction of the Biochemical Oxygen Demand of Sewage by Chlorination.—A booklet of 13 pages containing a paper with the above title by H. G. Baity and F. M. Bell, Associate Professor of Sanitary and Municipal Engineering, and Research Assistant in Sanitary Engineering, respectively, University of North Carolina, reprinted from the Journal of the North Carolina Water and Sewage Works Association, 1928. 25c. (Apply to the Dean, School of Engineering, University of North Carolina, Chapel Hill, N. C.)

Operating Cost Statistics of Automobiles and Trucks. Bulletin 91 of the Engineering Experiment Station, Iowa State College.—A report by T. R. Agg, Highway Engineer of the Station, and Harold S. Carter, Professor of Civil Engineering, South Dakota State College. It summarizes data from many sources for the purpose of presenting a fair approximation of the actual cost of the average owner of operating a motor vehicle. The effect of various types of road service on the cost of operation is also dealt with. July 25, 1928. 51 pages. (Apply to the Station, Ames, Iowa.)

A Bibliography of Camp Safety Hygiene and Sanitation.—This leaflet, prepared by Mildred B. Pressman, Librarian, National Bureau of Casualty and Surety Underwriters, is divided into two parts—Camp Construction and Mechanics of Organization, and Camp Activities, May, 1929. 12 pages. (Apply to Education Division, National Safety Council, 1 Park Ave., New York.)

Mechanical Billing and Bookkeeping.—Two articles in the April and May numbers of *Public Management* which describe the application of mechanical billing and bookkeeping to tax accounting and collection in Durham, N. C. By James B. Iler, Assistant to City Manager in that city. 50c a copy. (Apply to *Public Management*, 923 E. 60th St., Chicago.)

Above corings were taken from un-cured concrete base for black-top.

Hunt Process "Cure Prevents Hair-Checks Gives Greater Strength

THE "Hunt Process" hastens the completion of the job—opens the road earlier—prevents destructive hair-checks. But even more important, it makes the concrete actually stronger through proper curing. These are accepted facts, proven by the use of millions of yards of "Hunt Process"-cured pavement over a period of years.

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Concrete base when used in connection with black-top pavements is usually a weaker concrete and as a rule is very seldom cured properly. The badly hair-checked cores shown above were taken from such concrete. The "Hunt Process" not only cures concrete base perfectly, eliminating all hair checks, but acts as a perfect binder for the black-top as well.

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Outdoor Recreation Legislation and its Effectiveness.—By Andrew G. Truxal. Columbia University Press, New York. 1929. 218 pp. $3.50.

This study falls into two distinct parts. The first presents a summary of outdoor recreation legislation in America from 1915, which was substantially the beginning of the general development, to 1927. The second is an inquiry into the social significance of the recreation movement. One practical value the author has had in mind for the work is that it will put into the hand of the public official a measure for development in this field in his state and locality as against the standard of established practice. Another is to the sociologist, whose question, "How did we get this way?" must be followed inevitably by another question: "What are we going to do about it?"

Several examples of typical legislation are discussed in connection with each subject, and these are followed by a summary digest of all legislation on that subject. Sixty ordinances representing cities of different sizes and presenting important variations as to methods of acquisition, administration, and control over recreational areas are presented in summary digest form.

In the second part of the study, while examining specifically the relation between recreation and juvenile delinquency in Manhattan in 1920, the author keeps uppermost in mind the questions: "What justification is there for the enactment of all this legislation?" and "Can it be demonstrated that this expenditure of time and energy is, on the whole, justifiable?" He looks with considerable skepticism upon the too easy generalizations such as would attribute delinquency to any one environmental factor; and he seeks to "refine the methods through which this and other questions will have to be attacked in order either to justify or to show unjustifiable the present governmental interest in recreation."

Enlarged Usefulness of City Planning Commission in New York State.—By Edward M. Bassett, President, National Conference on City Planning.—**The Traffic Analysis and Forecast in its Relation to Thoroughfare Planning,** by Robert Whitten, City Planning Consultant, New York.—**What Makes "The City Beautiful,"** by George B. Ford, Technical Advisory Corporation, New York.—Three papers from the National Conference on City Planning, Buffalo, May, 1929. In the first, the President describes the provisions in the State Laws of 1926, through which planning has made a great gain both in cities and villages. These laws "recognize that streets and parks constitute the backbone of the city plan." Bound in the same 24-page pamphlet with Mr. Bassett's paper is Mr. Whitten's technical, illustrated discussion of scientific provisions for adequate street systems. Mr. Ford takes for his thesis that beauty which consists in the "closer approach to practical perfection in the adaptation of means to end than is required to meet the merely economic standards." "The building or the town that will live down through the ages must have in its design that same inspired vision on the part of the creator that characterizes all the great works of art that have come down to us." 10 pp. (Apply to National Conference on City Planning, 105 East 22nd St., New York.)

Housing in New York State.—The report of the State Board of Housing to the Governor and the Legislature of New York for the year ending March 6 is issued as Legislative Document (1929) No. 95. It is a document of more than passing interest, recording as it does substantial progress in new housing under the State Housing Law, with administration of which the Board is charged. Projects completed or pending represent a valuation of $5,000,000 and provide accommodations for 1,000 families, while preliminary plans have been worked out for several other housing developments; and all of these represent standards appreciably above the average. There is a section on housing regulation under building and housing codes, zoning and city planning, with descriptions of conditions arising from lack of regulation. Housing conditions in New York City are reported in detail. The whole is illustrated with photographs, charts and tables. 96 pp. (Apply to the Board, Albany, N. Y.)

New Jersey—Life, Industries and Resources of a Great State.—Floyd W. Parsons, Editor-in-Chief. Published by the New Jersey State Chamber of Commerce. 1929. 404 pp. $3.50.

New Jersey has inaugurated a new policy in the field of state and community publicity by producing this handsome volume, which tells in a colorful and dignified manner the story of the state's development. It may not immediately prove as effective "boosting" material as the customary pamphlets and magazines published for that purpose by Chambers of Commerce, etc., but this book will live long after all such publicity matter has gone, and it should stand in many libraries, schools and colleges throughout the country as an authentic and generally impartial history of New Jersey's development. It should be read with enthusiasm by residents of that state and also prove interesting to thousands in other states who enjoy following the country's industrial, social and educational progress. There are 408 excellent half-tone illustrations in the volume, some of them in color.

The opening chapter sketches the early political and social history of New Jersey, setting the tenor for the subsequent chapters on its steady growth and the diversified interests of the present era. This initial discussion is followed by chapters on the state's natural resources, the people and their religion, educational institutions, agriculture, public utilities, transportation and commerce, beaches and resorts, parks and playgrounds, insurance and banking, industries and businesses, hospitals and correctional institutions, etc. An idea of New Jersey of tomorrow is presented in the final chapter, with all predictions based on the progress of the past and present.

The State Chamber of Commerce undertook a difficult task in preparing this book and has undoubtedly omitted much interesting material for lack of space. In general, Mr. Parsons, as editor, and George S. Burgess, Vice-President and Secretary of the State Chamber, and Edward P. Hulse, technical critic for publishing houses, as associate editors, showed good judgment in the choice of chapter subjects and in their treatment of the many subsidiary subjects requiring mention.

Radburn Protective Restrictions and Community Administration.—A booklet of 41 pages setting forth the plan that has been adopted for protecting the character of Radburn, "the town built for the motor age," at Fair Lawn, N. J., by the City Housing Corporation of New York, the limited dividend company that has developed the Sunnyside section in the borough of Queens, New York City. The booklet includes Declaration of Restrictions No. 1, with a clear and concise summary thereof, and also the certificate of incorporation and the by-laws of the Radburn Association, organized to provide for the various services required by the community, and for the enforcement of restrictions and supervision of structures. (Apply to the City Housing Corporation, 18 East 48th St., New York.)

Housing in Germany: Shortage and Bad Conditions.—By Bruno Schwan, Manager, German Association for Housing Reform (Deutscher Verein für Wohnungsreform). This, No. 7 of the Association's housing reform series, shows the tremendous proportions to which the needs in that country have grown, and the almost insuperable financial task of remedying them due to the country's financial situation. The actual shortage of about a million houses is but part of the story. Much of the large-scale, cheap and inadequate industrial development housing provided during the last century is now in pressing need of repair and of better sanitation. In brief, "conditions have arisen fatal to the health of the nation." These must make the strongest demands on Germany's financial powers for years to come. Lest the whole presentation seem too lurid, the author has added scores of photographs eloquent of the situation presented. Because it is considered not amiss that visitors from other countries should know of this condition as well as of "the fine front German towns present to strangers," the German Association for Housing Reform has circulated copies of this study to all members of the International Housing Association. In German. 390 pp. 5 marks, net. (Apply to publisher, Carl Heimann, Berlin, Germany.)

Where City Planning and Housing Meet. Some Problems In New Planning.—"That city planning and housing meet so constantly and embrace each other so intimately as to make holy matrimony their only proper status," is the theme of the paper, "Where City Planning and Housing Meet," delivered by Harold S. Buttenheim, Editor, THE AMERICAN CITY, at the meeting of the National Conference on City Planning in Buffalo recently. They meet in the zoning and building codes; they meet in the street; in the multi-family dwellings; in the onward march of business and industry; in the practice of land economics; in their social objectives; they meet, or should meet, in slum clearance; and at other times and places innumerable. In "Some Problems of the New Planning," another paper from the same meeting, Louis Brownlow, Municipal Consultant, City Housing Corporation, New York, draws upon Radburn, N. J., "the new town for the motor age" where experiences, realized and impending, promise as brilliant a union of these twain above considered as has thus far been devised, and at the same time carry the science of city planning forward along other lines. 10 pp. and 14 pp. (Apply to the Conference, 105 East 22nd St., New York.)

Typical City Plan to Better Traffic Conditions.—The prize-winning plan in the *Nation's Traffic* competition, by Gardner S. Rogers, is concluded in the May issue of that magazine. The first portion, appearing in the April issue, was noticed in this department of THE AMERICAN CITY last month; the address of *Nation's Traffic* was erroneous, however, the correct address being 706 Chestnut Street, St. Louis, Mo. Reprints may be secured from Mr. Rogers, Civic Development Department, Chamber of Commerce of the United States, Washington.

Comprehensive City Plans, Lancaster, Pa.—In celebration of its 200th birthday, the Lancaster City Council authorized the Planning Commission to make a study of the planning problems of the city and the outlying regions over which the Commission has jurisdiction by Act of Assembly. John Nolen and Associates, of Cambridge, Mass., were engaged to make the studies for the creation of the Master Plan. These studies are now published in the form of a 62-page comprehensive report prepared for the consideration of the citizens. It is copiously illustrated with photographs, maps, and pictorial charts. (Apply to the Commission.)

A Plan for Vancouver, B. C.—The Comprehensive Plan for the City of Vancouver, prepared by the Town Planning Commission for the City Council, under direction of Harland Bartholomew and Associates, town planning consultants, covers: Major Streets, Transit, Transportation, Public Recreation, Zoning and Civic Art. In addition, it contains chapters on The Execution of the Plan, Programme of Improvements, and many appendices. It is illustrated with plan maps and photographs. Price $2. (Apply to Secretary, Vancouver Town Planning Commission, 626 W. Pender St., Vancouver, B. C.)

Port Design in the Regional Plan.—A 33-page article in *World Ports*, May, 1929, entitled, "General Principles of Design and Location of Ports as Applied to the Preparation of a Regional Plan for Port Development at Chicago," by Major Rufus W. Putnam, C. E., U. S. A., Retired, contains valuable comparative data on port development, European and American, as well as constituting an able discussion of the many phases of efficient present-day port building. 50c. (Apply to the magazine, New Orleans, La.)

Zoning: A Statement of Principles and Procedure.—The Civic Development Department of the United States Chamber of Commerce has for several years furnished its constituent members with educational and factual material on zoning. It goes the step further in the present pamphlet, which is designed for the civic or municipal group that knows what has been accomplished elsewhere by adequate zoning, and has arrived at the definite problem of its own zoning ordinance. 26 pp. (Apply to the Department, Washington, D. C.)

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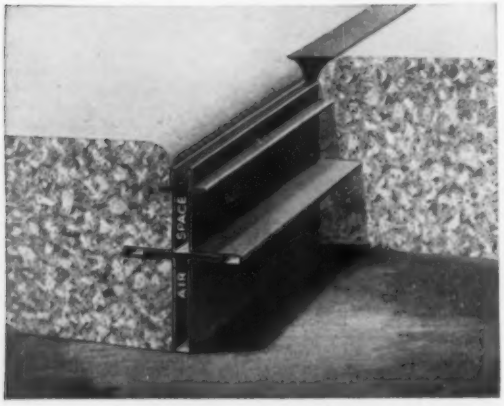

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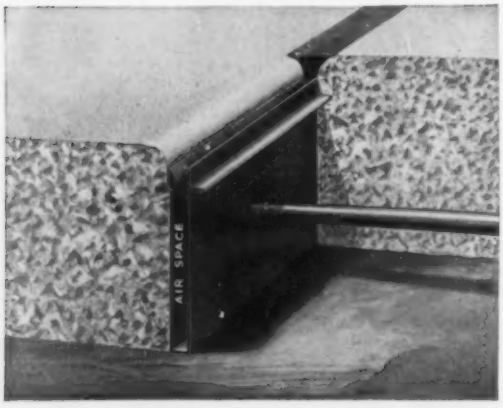

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Community Conflict.—A Formulation of Case Studies in Community Conflict with Discussion Outlines. The Inquiry, 129 East 52nd Street, New York. 160 pp. $1.50.

Wherever there is community activity there is apt to be community conflict, because "the modern community tends to become a web of interest groups" and when something needs to be done for all the community these interest groups come forward to represent their stake in the project. How are these conflicts to be used constructively? How many men acquire the understanding and control that shall make of conflict not a force of disintegration but of integration? How may we develop such techniques for redirecting cross-purposes as shall further, not frustrate, community progress? Starting with the thesis that the resources for solving the conflicts are inherent in the very groups that precipitate them, this study presents and discusses objectively a considerable number of actual "conflicts." These were collected during 1926 and 1927 by Raymond G. Fuller and Helen Mayers under direction of E. C. Lindeman, who directed the study. Discussion and study outlines for three groups are appended: for lay organizations; for students of social science; and for community leaders.

Welfare Work in Mill Villages.—By Harriet L. Herring, Research Associate, Institute for Research in Social Science, University of North Carolina. University Press, Chapel Hill, N. C. 1928. 406 pp. $5.00.

This is one of the first units in a special group of regional studies of the textile South, and is intended to serve as an approach and an introduction to a broad and practically unrecorded subject. For its purposes, 322 of the 500 mills in the state were selected for careful investigation as to past history and present status. Thus the whole complex relationship between industrial evolution and community development could be shown under all the varieties of local conditions. The mill and educational activities; the mill and the churches; the mill town and its civic life; recreation; health work, housing, are all presented in careful detail. The history of the mill village is given, also a history of welfare work among millworkers, with a chapter of "Cross Sections of Welfare Programs." Opinions of welfare work by management, community workers, and employees, by neighbors and outsiders, make up one of the most illuminating sections of the study, which as a whole is an interesting and readable document in addition to being a valuable sociological record.

Special Municipal Corporations.—By F. H. Guild, University of Kansas. In a 5-page article in the May, 1929, issue of the *National Municipal Review*, the author discusses this distinctive new agency of the local government—"superimposed upon all the others and disregarding them freely." Like the municipal corporation proper, that is, the civil city, "this special corporation is formed to meet a particular community need not satisfied by the pre-existing general framework of government." There are 47 varieties of special municipal corporations in the United States, 89 of which are listed alphabetically. They exist as legal entities, they are serving useful purposes, and will doubtless continue to do so till local government is adjusted to meet modern needs. The magazine is 50c a copy. (Apply to *National Municipal Review*, 261 Broadway, New York.)

There's No Need to Clog the Streets.—A 4-page reprint of an article by Alvan Macauley, President, Packard Motor Car Company, in the March issue of *Nation's Business*. Mr. Macauley reviews the activities of national organizations working in the interest of relieving traffic congestion such as menaces the modern American city. He also reviews some outstanding activities and proposed activities in large cities looking to the same end. The problem will continue to grow, he urges, and every existing traffic relief agency has its important part to play in fighting congestion. "By combining every agency concerned in a national traffic campaign the congested condition of our city streets can be greatly improved." (Apply to *Nation's Business*, Chamber of Commerce of U. S., Washington, D. C.)

Proceedings, Seventh Annual Asphalt Paving Conference.—This conference, held in New Orleans, December 3-7, 1928, under the auspices of The Asphalt Association and The Association of Asphalt Paving Technologists, was attended by some 750 highway engineers, public officials, asphalt producers, salesmen, chemists and others interested in the development of asphalt paving, and was the largest of the seven thus far held. The Proceedings include, besides addresses of welcome, resolutions, committee reports, a paper on the progress of paving in New Orleans, etc., various groups of papers that constitute Circulars Nos. 60 to 66, inclusive, of The Asphalt Association, under the following topics: The Economics of Asphalt Paving Construction; Airports and Airways; Subgrades and Bases; Asphalt Filler Requirements for Brick Pavements; Service Results with Asphalt in States and Provinces; Low-Cost Road Improvement with Asphaltic Materials; and Recent Research in the Technique of Asphalt Paving. 151 pp. (Apply to The Asphalt Association, 441 Lexington Ave., New York.)

Our Chicago.—Vol. 1, No. 1, of a periodical of this title devoted to the activities of the Department of Public Works of Chicago appears under date of May, 1929. It is inspired by the same civic-mindedness which caused the Commissioner of Public Works, Richard W. Wolfe, soon after his assumption of duties, to organize a speakers' bureau, an institution which has been particularly popular and successful. The sentiment back of both is that "the people of Chicago are entitled to know what is being done for them in the way of municipal improvements, and how their money is being expended." The present issue contains leading articles on the financial history of Chicago's water-supply, and on the river-straightening project. 8 pp. (Apply to the Department.)

Twenty-Fifth Anniversary, Chicago City Club.—The "father of city clubs" began its existence in 1903 under a charter in which its purpose was expressed as the bringing together informally as many as possible of those men who sincerely desire to meet the full measure of their responsibility as citizens, who are genuinely interested in the improvement by non-partisan and disinterested methods of the political, social and economic conditions of the community. Reviewing its record, and reporting its achievements in this 60-page publication, the Club is still able to put forward this statement as representing its ideals and its essential qualifications for membership. (Apply to the Club, Chicago, Ill.)

Fatal Automobile Accidents in New York State in 1927.—A 16-page study of fatal auto accidents in that state during 1927, according to place of occurrence and principal causes, prepared by Dr. J. V. DePorte, Director of the Division of Vital Statistics of the New York State Department of Health, which publishes it. Tables and charts are included giving the deaths and death-rate from automobile accidents by age, sex, sections of the state, cities, etc. Careless driving is held to be the chief cause of fatal automobile accidents, and Dr. DePorte advises that greater attention be given the problem of traffic control on rural highways, where, he declares, much speeding prevails. The allocation of deaths according to the place of occurrence of the accidents shows that in 1927 the recorded death-rate in rural New York was more than double the rate in the urban section of the state, with New York City omitted. See page 152 of this issue. (Apply to the Division, Albany, N. Y.)

The Administration of Drivers' License Laws.—During a campaign for a Drivers' License Law in Illinois, the National Safety Council was asked as to the workings of such laws, and being unable to give definite answers off-hand, it set about an investigation. One result is "A Summary of Methods of Administration in Ten States and the District of Columbia," made by Mason E. Westcott, and appearing in the *National Safety News* for May. The article is available in a 4-page reprint form also. (Apply to National Safety Council, 108 East Ohio Street, Chicago, Ill.)

Proceedings of Eleventh Texas Water Works Short School.—This annual school was held for eight days beginning January 14, 1929, at Texas Agricultural and Mechanical College, College Station, Texas, followed by a three-day convention session in the nearby city of Bryan, all being under the joint auspices of the Texas State Department of Health and the Texas Section of the Southwest Water Works Association, with the cooperation of the College and of the city of Bryan. The Proceedings are in a 219-page paper-bound booklet, and include 23 papers on water-supply subjects, and 16 relating to sewage. There is also a 19-page table showing the status of municipal sanitary improvements in Texas, January 1, 1929. Illustrated. $1.00. (Apply to V. M. Ehlers, Secretary, Texas Section, Southwest Water Works Association, Austin, Texas.)

Municipal Recreation in Philadelphia.—A study made by Charles J. Storey, Department of Recreation, Russell Sage Foundation, and published by the Playgrounds Association, Philadelphia, Pa. It shows that four municipal bodies and at least two philanthropic associations furnish public facilities for leisure-time pursuits of the people. One of its chief purposes is to aid in welding together in common interest the whole body of municipal and citizen organizations for the greater extension and improvement of the recreation facilities. 2 volumes, multigraphed, 25 and 26 pp. (Apply to Playgrounds Association, Philadelphia, Pa.)

The Home Modernizer.—Vol. 1, No. 1, of a monthly magazine, which was formerly a bi-monthly house organ, and which is affiliated with the Home Modernizing Bureau of the National Building Industries, Inc. "Because of the rapid growth of the modernizing movement, the need has presented itself for a publication with which to spread the story far and wide," says the leading editorial. "Our aim is to spread the gospel of modernization and do all in our power to assist the building industries to dispose of their products to those who need them most." $1 per year. (Apply to The Home Modernizer, 228 N. LaSalle St., Chicago, Ill.)

A Year's Defense of the Negro's American Citizenship Rights.—The 19th Annual Report of the National Association for the Advancement of Colored People is a 50-page record, including account of the Association's participation in getting justice for the negro where race discrimination has been the issue. Under the head of Legal Defense is reported a group of cases in which this organization was able to get reversals of decisions where the sentences were drastic. A large number of civil rights cases in which the Association has taken aggressive leadership for negro rights are recorded together with the year's history of lynchings, etc. The 19th Annual Conference is also reported, and the Association's financial statement, details of organization, etc., appended. (Apply to the Association, 69 Fifth Avenue, New York.)

The Chicago Traction Bills.—A Test of Democracy.—An 8-page pamphlet giving arguments against the bills introduced in the Legislature for settlement of the Chicago transit situation. It is issued by the Strap-Hangers' Protective Committee. Municipal ownership is advocated. (Apply to Municipal Reference Library, 1005 City Hall, Chicago; 2c postage.)

The Status of Chicago's Traction Problem.—A statement authorized by the Citizens' Traction Settlement Committee, appointed in December, 1928, by Federal Judge J. H. Wilkerson; also authorized by the Local Transportation Committee of the City Council of Chicago. It is in support of the traction bills. 29 pp. (Apply to Municipal Reference Library, 1005 City Hall, Chicago; 5c postage.)

The Condemnation Procedure of 23 Cities.—A 32-page mimeographed report, No. 109, of the Detroit Bureau of Governmental Research. There is a tabular outline of procedure in the cities, with textual explanation, summary and conclusions. (Apply to the Bureau.)

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The Buffalo City Hospital.—The Municipal Administration Service, 261 Broadway, New York, has published an 8-page multigraphed abstract of a report on the survey of the Buffalo City Hospital made by the Buffalo Municipal Research Bureau, Inc., Harry E. Freeman, Director. Part I is a statistical analysis of the hospital service; Part II consists of recommendations for reorganization, and there is an appended reorganization chart. (Apply to the Service.)

Other Reports Received

ATLANTA, GA.—Annual Report, City Comptroller, 1928. 94 pp.

CHICAGO, ILL.—Annual Report, Department of Gas and Electricity, 1928. 60 pp.

CONCORD, N. H.—Annual Report, Board of Water Commissioners, 1928. 30 pp.

DETROIT, MICH.—Annual Report, City Plan Commission, 1928. 32 pp.

FORT WAYNE, IND.—Annual Report, Chamber of Commerce, 1928-1929. 106 pp.

HOLLAND, MICH.—Annual Report, Board of Public Works, 1928. 48 pp.

NEW YORK CITY.—Annual Report, Voluntary Defenders Committee, Legal Aid Society, 1928. 16 pp.

NEW SOUTH WALES.—Report, Local Government Department, year ending June 30, 1928. 38 pp.

NORWICH, CONN.—Annual Report, Board of Water Commissioners, to March 31, 1929. 35 pp.

OAKLAND, CALIF.—Civil Service Rules and Charter Provisions, April 1, 1929. 86 pp.

PITTSBURGH, PA.—Annual Reports, Chamber of Commerce (55th anniversary issue, 1928-1929). 50 pp.

SASKATOON, SASK.—Report, Annual Convention, Saskatchewan Association of Rural Municipalities, March, 1929. 58 pp.

SCRANTON, PA.—Annual Report, Chamber of Commerce, 1928-1929. 12 pp.

TAUNTON, MASS.—Annual Report, Water Commissioners, 1928. 46 pp.

CONVENTIONS—WHEN AND WHERE

JULY 9-10.—SAN ANTONIO, TEXAS
Association of Chiefs of Police and City Marshals of Texas. Annual convention. Secretary, George A. Smith, P. O. Box 299, Dallas, Texas.

JULY 9-12.—MILWAUKEE, WIS.
American Society of Civil Engineers. Annual convention. Secretary, George T. Senbury, 33 West 39th Street, New York.

JULY 14-20.—PALO ALTO, CALIF.
Western School for Commercial Secretaries. Annual session. Manager, Roy W. Smith, Palo Alto, Calif.

JULY 16-19.—CLEVELAND, OHIO
State Police Chiefs, Inc. Annual convention. Secretary, E. G. Krause, 1020 Guardian Building, Cleveland, Ohio.

JULY 23-25.—CORTLAND, N. Y.
New York State Association of Chiefs of Police. Annual convention. Secretary-Treasurer, James L. Hyatt, Police Department, Albany, N. Y.

JULY 23-25.—BETHLEHEM, PA.
Pennsylvania Chiefs of Police Association. Annual convention. Secretary-Treasurer, J. N. Tillard, Chief of Police, Altoona, Pa.

AUGUST 4-17.—EVANSTON, ILL.
National School for Commercial and Trade Organization Executives. Annual session. Secretary-Treasurer, John N. Van der Vries, 607 First National Bank Building, Chicago, Ill.

AUGUST 20-22.—FORT DODGE, IOWA
League of Iowa Municipalities. Annual meeting. Secretary-Treasurer, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 20-22.—ESCANABA, MICH.
Michigan Association of Chiefs of Police. Annual meeting. Secretary-Treasurer, Alfred Seymour, Chief of Police, Lansing, Mich.

AUGUST 20-22.—PICTOU, NOVA SCOTIA
Union of Nova Scotia Municipalities. Annual convention. Secretary, Arthur Roberts, K. C., Bridgewater, N. S.

AUGUST 25-27.—MEXICO CITY, MEXICO
American Association of Engineers. Annual convention. Secretary, M. E. McIver, Willoughby Tower, Michigan Boulevard at Madison Street, Chicago, Ill.

AUGUST 27-29.—SALT LAKE CITY, UTAH
United States League of Local Building and Loan Associations. Convention. Secretary, H. F. Cellarius, 22 East 12th Street, Cincinnati, Ohio.

SEPTEMBER 3-5.—SAN FRANCISCO, CALIF.
National Association of State Auditors, Comptrollers and Treasurers. Annual convention. Secretary, Hon. S. H. Blan, State Auditor, Montgomery, Ala.

SEPTEMBER 9-14.—UPPER SARANAC, N. Y.
National Tax Association. Annual meeting. Secretary, W. G. Query, South Carolina Tax Commission, Columbia, S. C.

SEPTEMBER 12-22.—ROME, ITALY
International Federation for Housing and Town Planning. Congress. Secretary, H. Chapman, 25 Bedford Row, London, W. C. 1, England.

SEPTEMBER 17-20.—PORTLAND, MAINE
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 20-26.—TORONTO, ONT.
American Prison Association. Annual Congress. General Secretary, E. R. Cass, 135 East 15th Street, New York.

SEPTEMBER 23-25.—QUEBEC, P. Q.
American Association of Port Authorities. Annual convention. Secretary, Tiley S. McChesney, Room, 200, New Orleans Court Building, New Orleans, La.

SEPTEMBER 24-27.—PHILADELPHIA, PA.
Illuminating Engineering Society. Annual convention. General Secretary, A. B. Oday, 29 West 39th Street, New York.

SEPTEMBER 29-OCTOBER 4.—SPRINGFIELD AND CHICAGO, ILL.
American Civic Association, Inc. Third traveling annual meeting. Executive Secretary, Miss Harlean James, 901-3 Union Trust Building, Washington, D. C.

SEPTEMBER 30, WEEK OF.—MINNEAPOLIS, MINN.
American Public Health Association. Annual meeting. Executive Secretary, Homer N. Calver, 370 Seventh Avenue, New York.

SEPTEMBER 30-OCTOBER 4.—CHICAGO, ILL.
National Safety Council. Annual Safety Congress. Managing Director, W. H. Cameron, 108 East Ohio Street, Chicago, Ill.

OCTOBER 2.—INDIANAPOLIS, IND.
Indiana Commercial Secretaries Association. Annual meeting. Secretary-Manager, William H. Arnett, Indiana State Chamber of Commerce, Indianapolis, Ind.

OCTOBER 7-11.—OAKLAND, CALIF.
League of California Municipalities. Convention. Executive Secretary, William J. Locke, 707 Chancery Building, San Francisco, Calif.

OCTOBER 14-18.—PHILADELPHIA, PA.
American Society for Municipal Improvements. Annual convention. Secretary, C. W. S. Sammelman, 315 Commercial Building, St. Louis, Mo.

OCTOBER 14-16.—JACKSONVILLE, FLA.
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 100 North La Salle Street, Chicago, Ill.

OCTOBER 14-19.—LOUISVILLE, KY.
Playground and Recreation Association of America. Annual convention. Secretary, Howard S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 14-17.—TULSA, OKLA.
Southwest Water Works Association. Annual convention. Secretary, Lewis A. Quigley, Fort Worth, Texas.

OCTOBER 17-18.—JACKSONVILLE, ILL.
Illinois Municipal League. Annual convention. General Secretary, A. D. McLarty, Urbana, Ill.

OCTOBER 17-20.—AMES, IOWA
American Country Life Association. Conference. Executive Secretary, Benson Y. Landis, 105 East 22d Street, New York.

OCTOBER 20-23.—MILWAUKEE, WIS.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, S. V. Saxby, Chamber of Commerce, Duluth, Minn.

OCTOBER 22-25.—BIRMINGHAM, ALA.
International Association of Fire Chiefs. Annual convention. Secretary, James J. Mulcahey, Fire Chief, Yonkers, N. Y.

OCTOBER 28-NOVEMBER 1.—WEST BADEN, IND.
Asphalt Association. Convention. General Manager, J. E. Pennybacker, 441 Lexington Avenue, New York.

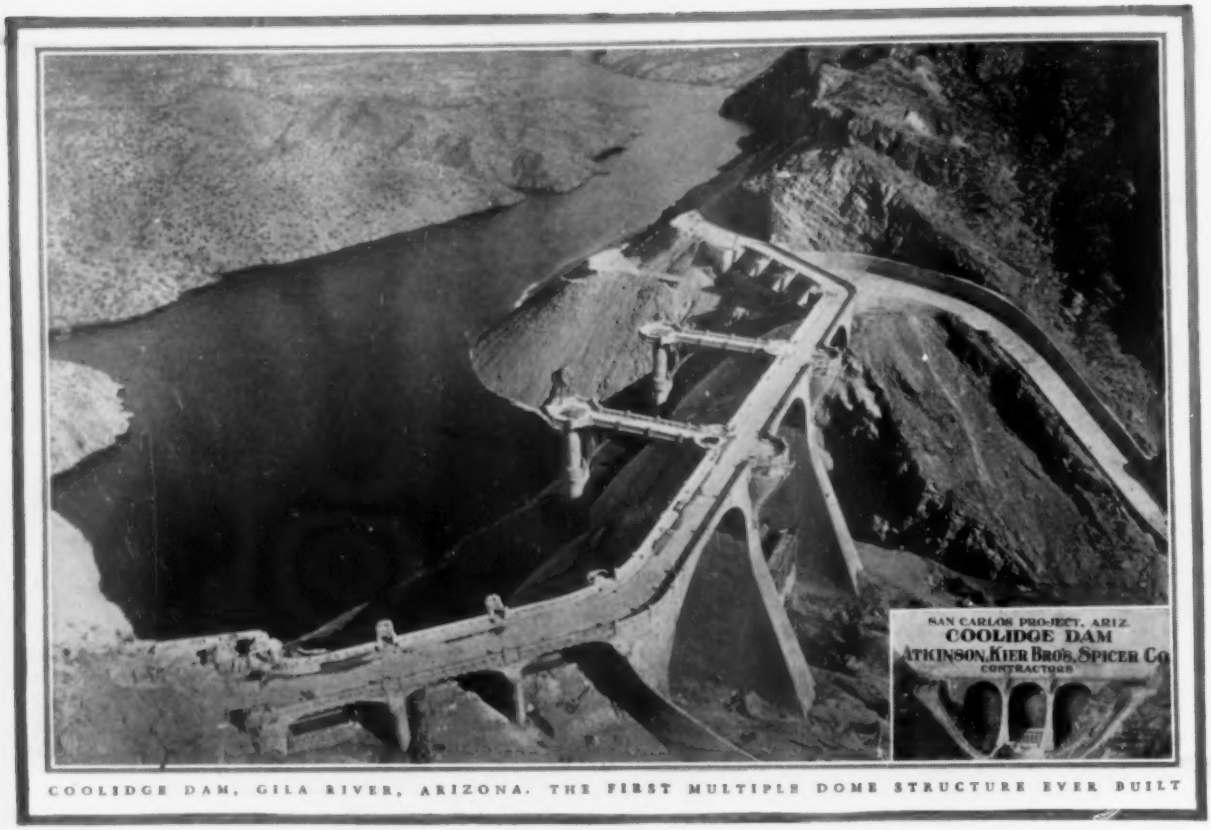
NOVEMBER 12-15.—SAN ANTONIO, TEXAS
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1222 National Press Building, Washington, D. C.

NOVEMBER 12-14.—CHICAGO, ILL.
National Municipal League. Annual convention. Secretary, Russell Forbes, 261 Broadway, New York.

NOVEMBER 18-21.—MIAMI, FLA.
American Institute of Park Executives and American Park Society. Annual convention. Executive Secretary, William H. Walker, South Bend, Ind.

NOVEMBER 20-23.—FORT WORTH, TEXAS
International City Managers' Association. Annual convention. Executive Secretary, Clarence E. Ridley, 923 East 60th Street, Chicago, Ill.

JANUARY 11-18.—ATLANTIC CITY, N. J.
American Road Builders' Association. Annual convention and Road Show. Secretary-Director, Charles M. Upham, National Press Building, Washington, D. C.



COOLIDGE DAM, GILA RIVER, ARIZONA. THE FIRST MULTIPLE DOME STRUCTURE EVER BUILT

Major C. R. Oldberg, Assistant Chief Engineer, Irrigation Bureau, U. S. Indian Service in charge. C. H. Southworth, Construction Engineer. F. A. Noetzli, L. C. Hill, General W. G. Langfitt and A. J. Wiley, Board of Consulting Engineers. Atkinson, Kier Brothers and Spicer Company, Contractors

Safeguarding the Investments in Public Service Structures

STRUCTURES for public service represent far more than their cost in money. They provide vital necessities—power, light, water, transportation, and disposal of wastes—for great industries and their dependent communities. They motivate the earning power of population.

Portland cement concrete is the construction element which has made the multiplication of these structures possible. Economy, and speed of erection, are served by this material as by no other. It is almost universally available.

Concrete affords certainty in the execution of design. Its qualities are controlled by basic principles which are simple but exacting. Scrupulously observed, they permit the engineer to build in confidence that the structure will endure to safeguard the investment in community service without interruption.

A BOOKLET, "The Design and Control of Concrete Mixtures" presents in plain terms the basic principles of concrete making, and will be sent to any address upon request

PORTLAND CEMENT *Association*

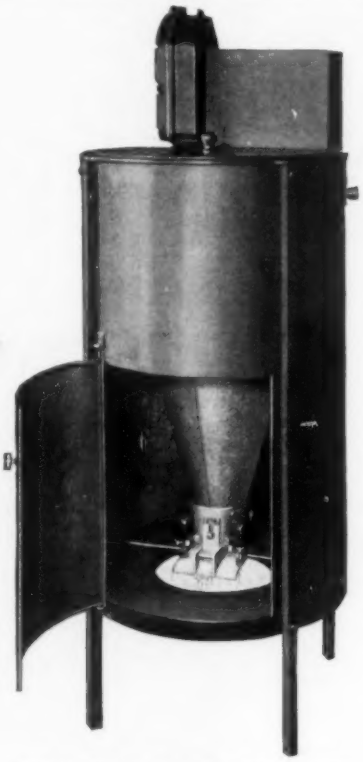
Concrete for Permanence CHICAGO

NEWS AND ILLUSTRATIONS

Items *of* Interest *to* City, Town *and* County Officials, *and* Others Concerned *with the* Economical Construction *and* Efficient Operation *of* Public Improvement Undertakings

A Low-Capacity Chemical Feeder

Designed essentially as a low-capacity feeder, the new W & T Type O dry chemical feeder has been announced by Wallace & Tiernan Co., Inc., Newark, N. J. This machine has a wide operating range and may be used for either fine or relatively coarse material. The minimum rate of feed averages 0.1 pounds per hour for all chemicals. The maximum varies from 40 to 80 pounds per hour, depending upon the chemical handled.



THE NEW W & T CHEMICAL DRY FEED MACHINE

The machine hopper has a flexing mechanism, an oscillating spout, and a convenient adjusting mechanism. The sides of the hopper are flexed by means of levers on the top which alternately pull in and push out the sides. This method of agitation prevents arching and keeps the contents of the hopper moving downward. A vertical agitator is provided for use with light chemicals.

The discharge from the oscillating spout is in the form of a ribbon, and the rate of discharge is determined by the length of ribbon pushed off the feed plate at each stroke of the spout. The spout stroke is regulated by a hand wheel having a 100-division circular scale. This long scale makes two revolutions in covering the full feed range. In addition to the spout stroke adjustment, the cross-section of the chemical ribbon may be varied.

The equipment is operated by a 1/6-horsepower motor, with a completely enclosed gear case. The gears run in a bath of oil, and the bearings, exclusive of the gear case, are fitted with special felt washers to keep oil in and dust out. The equipment is adaptable for overhead feed with either direct or solution discharge to the point of application. When solution feed is desired, a circular solution pot is provided. The water enters the pot at a tangent, and the solution is discharged through a central overflow outlet. High velocity and violent agitation makes the chemical solution with the minimum of water. Baffles are provided to prevent flooding.

A Power Grader Without a Center Circle

The design of the Twin City-Hawkeye motor patrol grader, made by the Minneapolis Steel & Machinery Co., Minneapolis, Minn., is such that the blade is carried on two members attached to the side frame of the maintainer. These side members operate from a ball-and-socket joint. They are raised and lowered and moved sideways with the changing position of the blade. Regardless of the angle at which the blade is operated, power is transmitted in a direct line to the cutting edge.

The manufacturer has built-in worm gears enclosed and running in oil to control the blade, and an adjustable 4-inch ball-and-socket joint from the side arms to the blade-lifting arms, and the blade shift is on lubricated steel rollers.

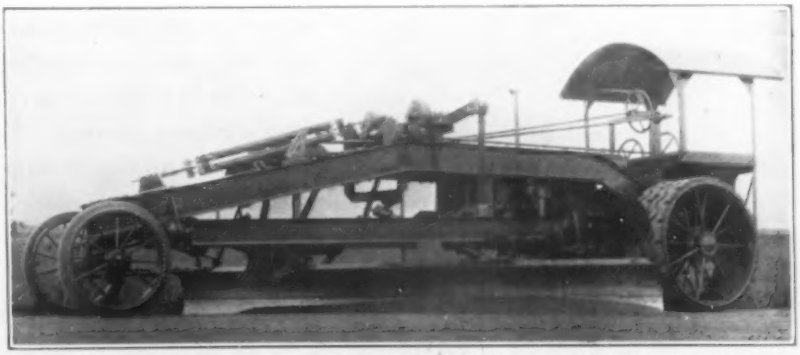
The power unit for this patrol grader is a 17-28 Twin City tractor with 4½-mile high speed, equipped with either steel or rubber-tired rear-wheels of either single or double width, and steel or solid rubber-tired front wheels. The complete machine weighs 13,800 pounds when equipped with cab and scarifier. The blade is of 1½-inch special carbon steel 16 feet long. The particular advantages claimed for this patrol grader are the easy-lifting blade, full view of the blade end, independent operation of the scarifier, the tractor cranking device at the rear of the cab, weatherproof cab construction and complete enclosure of the cab with curtain or wood and glass frames, and the spring-mounted wood platform.

A Sturdy Heavy-Duty Tractor

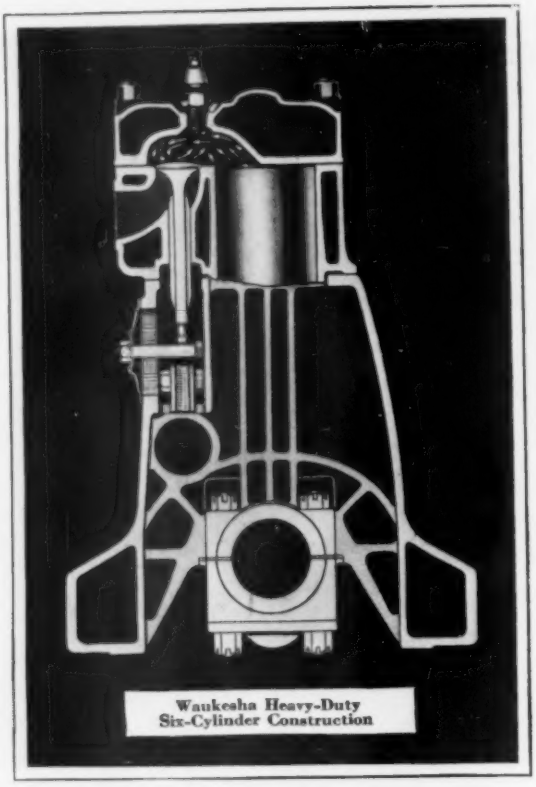
The main features required in a tractor are power, easy handling, economical operation and durability. A sturdy and heavy-duty tractor which is designed to meet these requirements is the Bates Steel Mule, manufactured by the Foote Brothers Gear & Machine Co., Road Machinery Division, 111 North Canal Street, Chicago, Ill. These tractors, which are made in three sizes, have a specially constructed drawbar which converts part of the pull into a downward force and thus increases the tractive power. The drawbar is of the swinging type equipped with a spring shock absorber, and extends from the rear of the tractor, resting between two heavy crossbars. The holes across both bars at equal intervals make it possible to insert heavy pins and hold the drawbar in any desired position.

The Bates Steel Mule is built broad and with a low center of gravity. The equalizing bar between the frame and the crawlers, distributes the weight forward and evenly on both crawlers. The crawlers have a large traction surface and are so placed that they protect the radiator.

The steering clutches are encased in a dry compartment which is oil-tight, and the large capacity brakes controlling the steering clutches makes it possible to turn the tractor in a small space. The brakes and clutches are independently controlled, allowing one crawler to stand still



THE TWIN CITY HAWKEYE MOTOR PATROL WITH 16-FOOT BLADE AND SCARIFIER ATTACHED



In an Emergency

. . . when reserve power is needed, Waukesha Engines never fail. There is no compromise in their design or construction . . . no limiting of power purposely, to reduce the stress in the frame.

Waukesha's "girder" type crankcase is designed for extra rigidity, both in bending and in torsion. The crankshaft is oversize—3½ inches in diameter. The steel backed bearing caps are held by four heat-treated alloy steel stud bolts. Reciprocating parts are closely paired and accurately balanced. Not only is objectional vibration thus eliminated but the combining of "girder" crankcase, rigid bearing and crankshaft construction is an exclusive Waukesha feature that makes double flywheels and dampeners unnecessary. Write for Bulletin 628. *Waukesha Motor Company, Waukesha, Wis., New York Office: 8 West 40th St., San Francisco: 7 Front St.*

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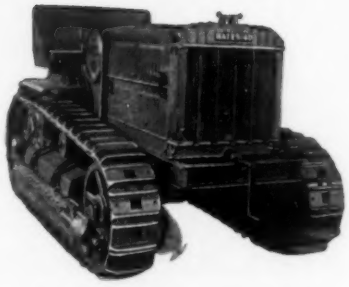
WAUKESHA ENGINES



THE BATES 40 STEEL MULE

while the other moves.

A 4-cylinder Waukesha motor of the medium-speed, heavy-duty type furnishes the power for this tractor. The motor is built with detachable chrome nickel iron cylinders and heads cast in pairs. A gear-driven centrifugal pump keeps the water circulating. It has a Bosch high-tension magneto with an impulse starter, and the fully enclosed governor. The full pressure oil system reaches all bearings, and a special provision is made to filter the oil while circulating as well as to assure proper lubrication when the supply is running low or in cold weather.

The transmission is easily accessible, and is of the selective sliding gear type with three speeds forward and one reverse. Each crawler is driven with an independent multiple disc clutch having large diameter plates fitted with friction linings.

The three models of the Bates Steel Mule, known as Models 30, 40 and 80, range in size and power from 8,750 pounds and over 28 drawbar horsepower to 22,500 pounds and 65 drawbar horsepower.

An Interesting Test of a Fence Post Anchor

Few people who have not made a practical test of a fence post anchor with diagonal braces realize the remarkable grip it has upon the ground. Recently a salesman of the Anchor Post Fence Co., Baltimore, Md., conducted the test illustrated below to convince a skeptical superintendent who had questioned every claim the salesman had made regarding the anchor.

In preparing for the test a standard Anchor line post was driven into the ground and anchored in the usual manner, as shown in the first illustration. Then a tractor having a maximum drawbar pull of approximately one ton was brought in and hitched to the top of the post, as shown in the second illustration. The superintendent claimed that the tractor would pull the anchored post clean out of the ground, roots and all. This was contradicted by the salesman. The driver of the tractor was then ordered to step on the gas. Naturally the tremendous pull of the power applied at the top of the post where the leverage was the greatest bent the post, as shown in the third illustration. The tractor kept on tugging at its load until it dug itself into the ground and stalled, unable to budge either the post or the anchors. When the ground was removed from around the anchors, the superintendent found that the anchorage was intact, as shown in the fourth illustration.

To further convince the superintendent, the salesman ordered that another post be driven and that the same tractor be hitched to the bottom of the post just above the ground line as shown in the fifth illustration. Here again the post anchors defied every effort made to dislodge them.

Lepper Joins Meter Company Sales Staff

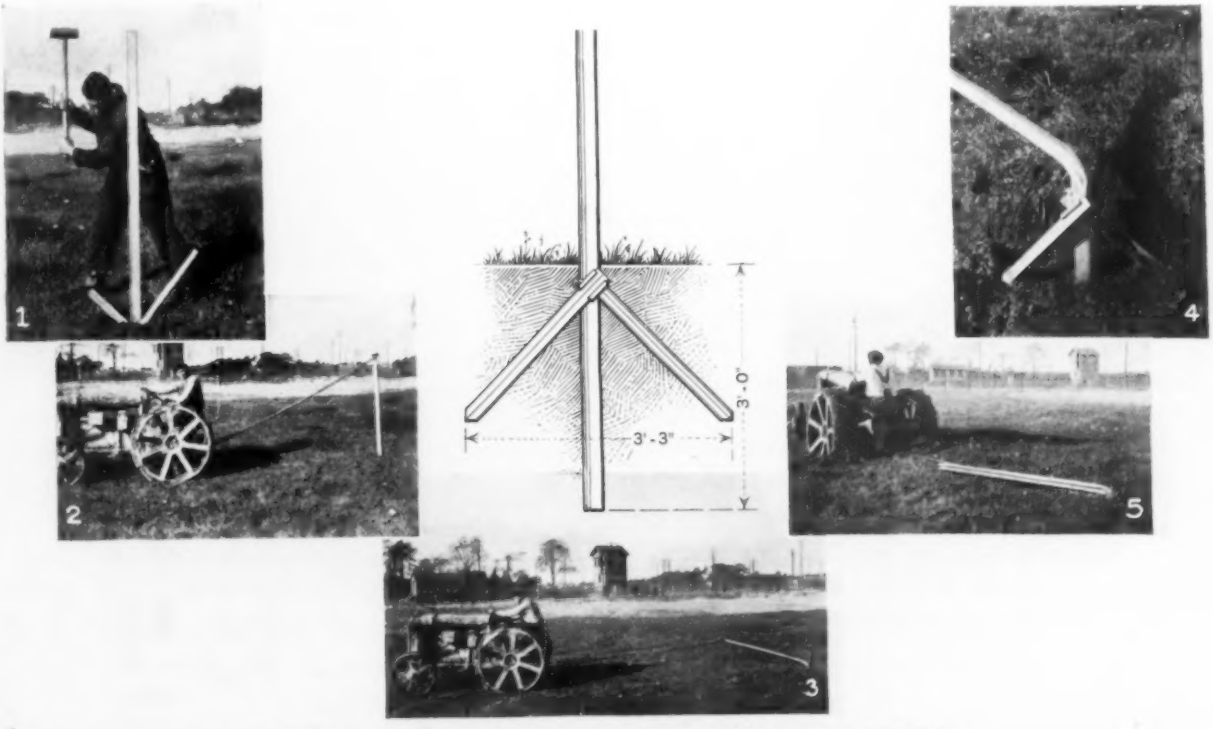
The Pittsburgh Equitable Meter Co., Pittsburgh, Pa., has announced that William Lepper, Jr., has completed the salesmen's special training course of one year and has joined the sales force of the company. Mr. Lepper spent six months in the shops studying and building gas-, water-, gasoline- and oil-meters and gas regulators and appliances, so that he is entirely familiar with the company's products. After completing the shop course, he spent six months becoming familar with the workings of the sales department from the inside, and later spent some time with the service department, so that he is fully equipped for the position he has now taken.

Cast Iron Pipe Company Moves New York Office

The American Cast Iron Pipe Co., of Birmingham, Ala., has announced the removal of its New York office from 165 Broadway to 117 Liberty Street. E. W. Herrmann is Manager of this office.

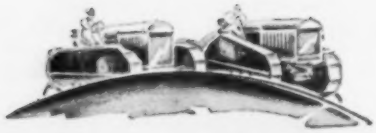
Chicago Pump Representative in Portland, Ore.

The Chicago Pump Co., 2336 Wolfram Street, Chicago, Ill., has announced the appointment of P. S. Lord as its sales representative with offices at 406 Weatherly Building, Portland, Ore.



STEPS DESCRIBED IN THE TEXT IN TESTING AN ANCHOR FENCE POST

The center illustration shows diagrammatically the form of anchor brace used on these posts



Pick this Team

and you've picked winners for any job

TRACKSON
McCORMICK-DEERING

Crawler Tractors

Head You Straight to Profit—No Matter What the Odds • • •

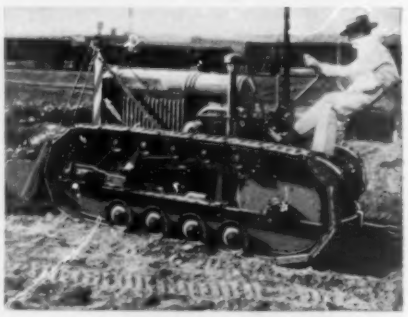
A GREAT team! The perfect combination for mastering every job, the year 'round. Performance for every purpose, effective and economical . . . Trackson Models LH and DH—one for agile power, one for heavy duty.

When the activity is most intense, you'll need winners—to set the pace, show the way to better work, quicker profits. With dominant, sure-footed power, they meet the most difficult requirements in hauling, digging, grading, scraping, backfilling.

Head straight to certain profits with Trackson Equipment—known wherever hours mean dollars. The Model LH has increased ground-gripping ability, retains the standard speeds of the McCormick-Deering (agricultural) tractor, and turns in its own length. The Model DH is built for heavy duty, with tremendous power and tenacious traction.

With supple strength, Trackson Shovels, Loaders, Cranes, Bulldozers and Hoists bring to any task outstanding performance and built-in reliability.

Learn how you benefit by low first cost, remarkable economy of operation and maintenance, and unusual adaptability of Trackson Equipment—saving time, men and money. WRITE TODAY FOR FULL DETAILS!



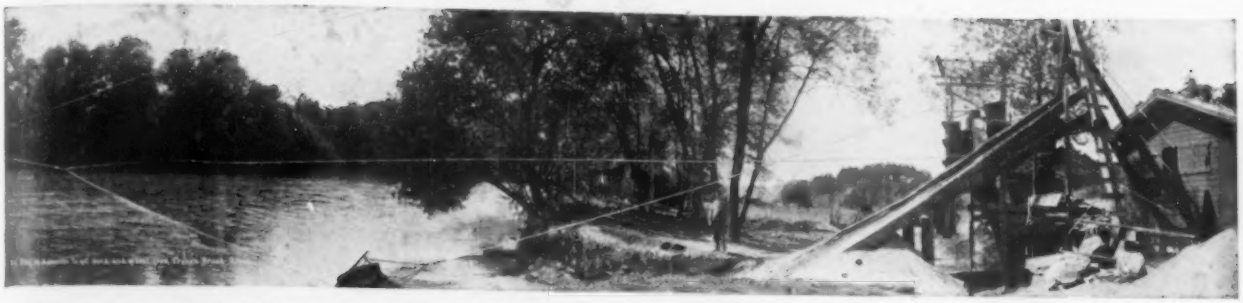
(Above) The Model LH Trackson McCormick-Deering for speed and agile power.

(Below) The Model DH Trackson McCormick-Deering for heavy duty jobs. Shown with Trackson Bulldozer.

Trackson Company
FULL-CRAWLERS & TRACTOR EQUIPMENT
518 CLINTON ST. MILWAUKEE, WIS.

FULL-CRAWLERS ★ BULLDOZERS ★ LOADERS ★ SHOVELS ★ CRANES

Why not remember to mention THE AMERICAN CITY?



UNDER-WATER OPERATION OF A SCHOFIELD-BURKETT AUTOMATIC LOADING BUCKET WITH SPECIAL HOOD HANDLING SAND AND GRAVEL AT ASHEVILLE, N. C.

Cleaning Ponds and Lakes

Many municipalities and industrial enterprises are faced with the problem of cleaning ponds, reservoirs, lakes and other bodies of water or accumulations of sediment and organic matter. The Schofield-Burkett Construction Co., Macon, Ga., has developed a solution for this problem where the span is not over 600 to 900 feet, and without reducing the volume of water in the area to be cleaned. Under patents recently granted, governing an automatic snubbing and shifting device, the Schofield-Burkett Co. can work out a triangular area in which the base of the triangle is equal to two-thirds of the span.

Instead of using the standard Schofield-Burkett bucket with automatic digging features, a hood is placed on the bucket, with excellent results, giving the full effect to the digging principle, but not allowing the material dug to float over the top and back of the bucket, and allowing the bucket to accumulate its load and carry it to its destination. For a job of this type at Asheville, N. C., over a span of 400 feet across the French Broad River, it was possible to anchor the base line on the opposite bank of the river to the delivery point, but where the volume of water is too wide to permit a cable to be anchored on land, it is possible to anchor the base line in the water and accomplish the same results.

One of these machines is now at work cleaning out the mill-pond for a large cotton mill in central Georgia. In this particular case the pond was drained and an attempt made to clean it with mules and scrapers, but the sedimentary deposit was so soft that the mules bogged down and the attempt failed. The Schofield-Burkett Co. was consulted and a machine was installed with the result that the muck is being cleaned out and used as a fertilizer for a mill village playground.

By using the patented digging bucket and snubbing and shifting device, one man can operate an electric installation, sending his bucket out to any point in the triangular area he desires. The shifting arrangement is unique, and where the span is 900 feet one man at one setting of the machine can clean a triangular area with a span of 900 feet and a base of 600 feet.

This machine is of particular interest to municipalities wishing to clean lakes storing their water-supply without wasting water, and to industrial plants that have mill-ponds or water reservoirs to be cleaned out. The cost of operating the machine is very low and the volume of deposit to be moved is controlled by the size of the bucket used.

A SCHOFIELD-BURKETT STANDARD BUCKET
For under-water work a steel hood is used on this bucket

All-Steel, Heavy-Duty Tool-Boxes

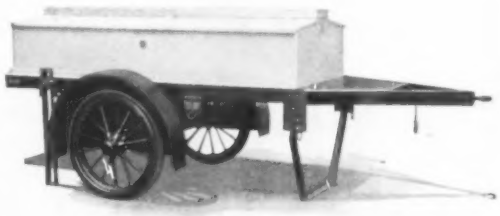
All-steel, heavy-duty trailer tool-boxes which are designed for highway maintenance departments, sewer, paving and bridge contractors and public utility companies are manufactured by Littleford Brothers, 500 East Pearl Street, Cincinnati, Ohio. Jackhammers, drills, squeegees, smoothers, hoes, rakes, shovels, picks and all other equipment used in maintenance and construction work may be stored in these boxes.

The box is 8 feet long, 45 inches wide and 24 to 29 inches deep. It is made of 12-gage steel, with a heavily reinforced bottom. The box is large and roomy, and arranged so that tools may be kept in order and easily found when wanted. A strong shelf, 12 inches wide by 2 inches deep, extends the full length of the box, 19 inches from the bottom. Wrenches, hammers, saws and smaller pieces of equipment may be stored on this shelf, leaving the bottom for the heavier tools and insuring safety for these smaller pieces of equipment when the outfit is trailed over rough roads.

The double cover is waterproof, flanged on all edges, rigid and strongly hinged. When thrown open, it is held in place by a lock device which will not let the cover fall down until released. Just in front of the tool-box is a steel work-bench 48 x 24 inches. It is built between the 5-inch channels that form the chassis and is strong enough to hold a vise or other bench tools. The box is also provided with a lock on the side wall and offers complete protection from theft.

The chassis on which this tool-box is mounted is made of 5-inch channels strongly braced by 5-inch cross headers and joined at the front end by an unbreakable cast steel pulling eye. It is mounted on 10-leaf 44-inch semi-elliptical springs which absorb shocks and permit rapid trailing. The 32 x 5-inch rubber-tired wheels are equipped with Timken roller bearings, and all shackle bolts have Alemite fittings.

The over-all chassis from back to pulling eye is 12 feet 3 inches, and the over-all width from hub to hub, 75 inches. Strong drop legs are placed at back and front, both of which are non-collapsible and hold the box firmly in place. The rear drop leg can be released, swung forward and fastened under the chassis.



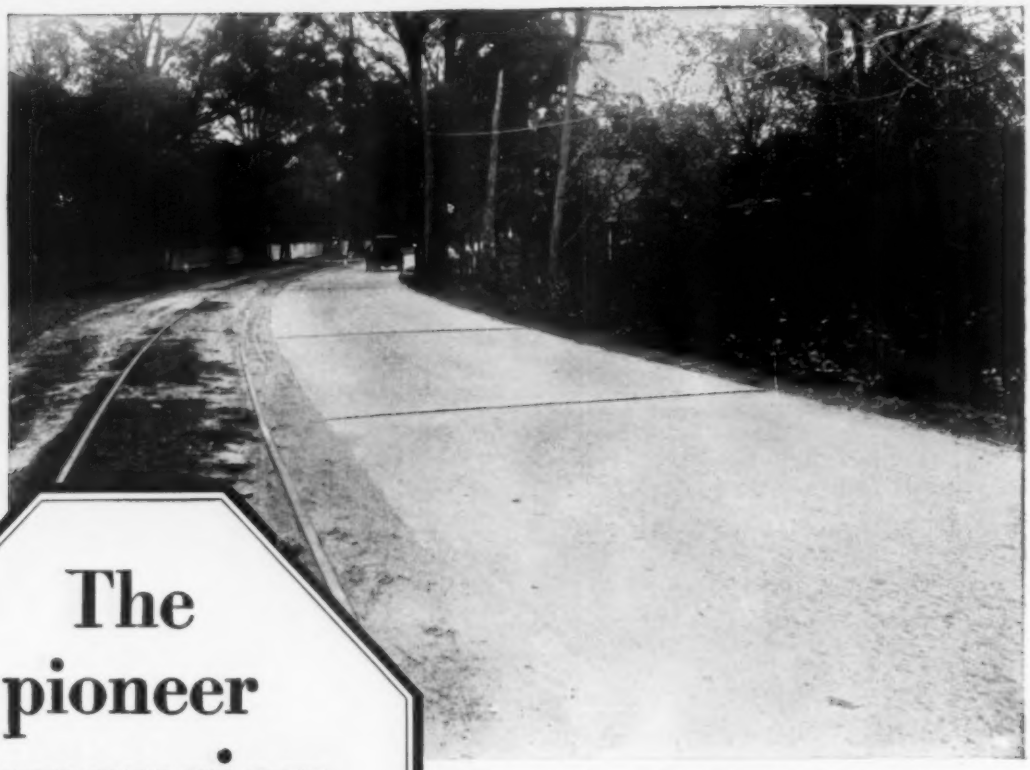
THE NEW LITTLEFORD TRAILER TOOL-BOX

New Members of United Tractors

The United Tractor & Equipment Corporation, Chicago, Ill., has announced two new members in the municipal and construction fields: Maine Steel Products Co., South Portland, Maine, manufacturer of snow-plows, and Northwestern Manufacturing Co., Milwaukee, Wis., makers of portable electric arc welding equipment.

New 1,000,000-Gallon Water-Tank for Gastonia, N. C.

The R. D. Cole Co., Newnan, Ga., has been awarded the contract to furnish and erect a 1,000,000-gallon storage tank for the water department of Gastonia, N. C. This tank is to be used as a storage and a booster for the present municipal water-supply. The tank will not be completed before late fall, as the concrete foundations are now being placed, according to C. E. Rhyne, Superintendent.



The famous Old Shell Road through Alabama, lastingly protected against expansion and contraction by Carey Elastite Expansion Joint, 160 joints to the mile.

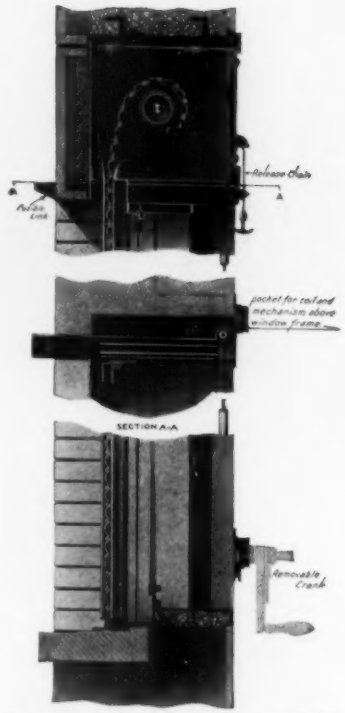
The pioneer Expansion Joint *protects* this pioneer road

THE historic Old Shell Road, through Mobile County, Alabama, is one of the oldest highways in the South. One of the *smoothest* concrete roadways, too, in spite of the heavy, high-speed traffic that constantly pounds its surface.

Smooth because it is perfectly protected against expansion and contraction strains. Hump-proofed and hollow-proofed with the pioneer "sandwich" Expansion Joint—Carey Elastite Expansion Joint, installed in $\frac{3}{8}$-inch thicknesses, transversely every 33 feet. Cushions of fibrous asphalt, bonded under terrific pressure between holding layers of asphalt-saturated felt. The indispensable, economical, "give-and-take" protection for concrete. Write for our free manual on Expansion Joint installation.

THE PHILIP CAREY COMPANY
***Lockland*, Cincinnati, Ohio**

Carey Elastite EXPANSION JOINT



VERTICAL SECTION OF A KINNEAR CONCEALED TYPE FIRE SHUTTER FOR USE IN EXTERIOR WALLS

Is Reliable Fire Protection Written Into Your Building Code?

Flimsy construction and non-fireproof buildings invariably mean high fire insurance rates. The proper municipal officials can well keep these rates within reasonable limits by a properly prepared building code.

One of the most important considerations in the protection of buildings in closely built-up quarters is the use of wire glass and steel rolling automatic closing shutters to prevent flames from breaking through into buildings which may have fireproof walls.

According to the well-prepared booklet, "Exposure Hazard and Window Protection," published by the Kinnear Manufacturing Co., Columbus, Ohio, wire glass in metal frames is a valuable retardent for fairly moderate exposure, but owes its great popularity largely to the facility with which it lent itself to substitution for the customary plain glass in wooden sash and frame. It requires no material modification in the design of window openings or changes in building construction and has therefore been most extensively used. It is frequently employed in places where a more sturdy and efficient retardent should have been selected, so that failures of wire glass should not condemn its use, but rather compel more serious thought in its application.

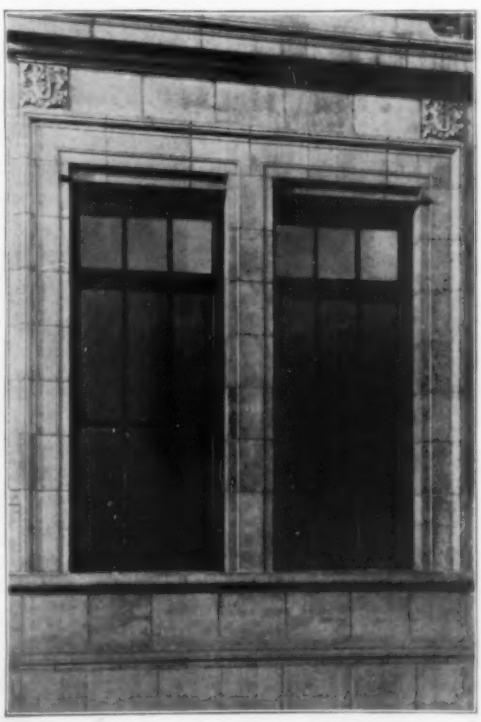
Because neither the wire glass nor the metal frames are combustible, many officials have been led to assume that it gives a maximum degree of protection. Owners of buildings who are relying upon wire-glass window protection for their safety from exposure fires, may find upon investigation of their property by qualified experts many instances where the value of wire glass has been greatly overestimated and that a more adequate protection is necessary.

Wire glass should not be depended upon for a serious exposure. The transmission of heat through wire glass is sufficient to ignite material behind and in the immediate vicinity. Under intense heat, glass rapidly breaks down, softening and running or pulling away from its anchorage in the sash. Obviously, it could not possess the qualities of physical strength which are so desirable, because of the low melting point of glass.

The ideal window protection consists of a combination of Kinnear steel rolling automatic closing shutters and wired glass in metal frames, the former placed exterior to the glass, permitting the shutter to take the brunt of the fire and heat. This is the standard of equipment adopted by the American Telephone and Telegraph Co. and used on its telephone exchanges.

The Underwriters' Laboratories have approved and the label service is available for the visible and concealed types of shutters in window openings where the area does not exceed 100 square feet and width or height does not exceed 12 feet.

The operation of this shutter is entirely automatic. The characteristics are quite unusual in that the actuation of testing device or separation of fusible link releases an impact member which strikes a blow of 250 inch-pounds on the drum member, carrying shutter, insuring positive closure; a spring motor propels the shutter to a complete closing position. A positive safety device consisting of an escapement type of governor controls the speed of the shutter in closing operation. The shutter is tested and restored to open position from the inside of building and from the floor level.



WINDOWS OF A TELEPHONE EXCHANGE EQUIPPED WITH KINNEAR AUTOMATIC STEEL ROLLING SHUTTERS OF THE DISAPPEARING TYPE

A New Type of Asphalt Joints for Sewers

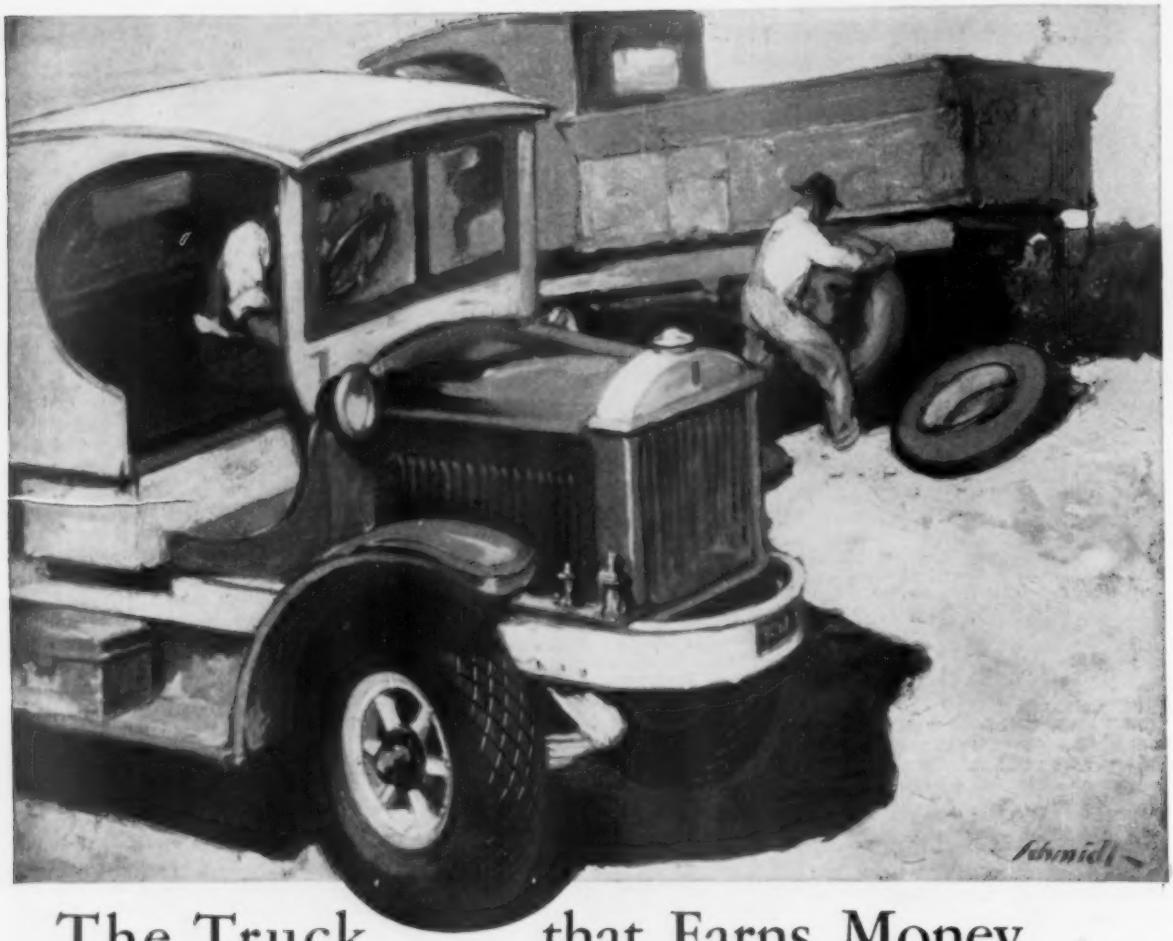
The Presstite Engineering Co., 4067 Park Avenue, St. Louis, Mo., has developed a new asphalt joint for sewer pipe. In preparing this joint, Kalktite dry asphalt, Kalktite liquid asphalt and Kalktite annular spacers are used.

In a mortar box or pail, enough Kalktite for about one hour's requirements is mixed, using three parts of the dry asphalt to one part liquid asphalt. The material is mixed until it becomes plastic and of puttylike consistency. Then a sufficient amount of Kalktite is troweled in the bottom of the bell of the pipe that has been laid, to completely fill the bottom part of the joint. The annular spacer is then placed in the bottom of the bell about halfway back and is pushed down until it is firmly in place in the bottom of the bell. Then the Kalktite is completely troweled over the spacer.

The spigot of the next pipe to be laid is then inserted, taking care that it is lifted as near the top of the bell as possible so as not to disturb the Kalktite or annular spacer in the bottom and to prevent any of the material from being pushed up into the flow line. After the pipe is pushed home to the base of the bell, it is pushed down firmly, so as to bed the pipe in the Kalktite and so that the weight of the pipe is supported on the annular spacer. The pipe is then brought to proper grade. It is then advisable to drive a wooden wedge in the top of the bell to bed the pipe firmly in the material in the bottom of the bell. The joint is finished by filling the rest of the annular space with Kalktite and calking it back solid with a suitable wooden or iron calking tool. The annular space may be filled with the hands or a trowel, or the material may be rolled out in rope form and then calked solid back in the bell. If a wedge is used, it should be taken out and the space filled with Kalktite. If so desired, jute may be calked into the annular space from the ends of the annular spacer before calking in the Kalktite. After the joint is completed, a swab is pulled through the pipe to remove any material projecting into the flow line.

New Yeomans Representative

Yeomans Brothers Co., 1433 Dayton Street, Chicago, Ill., manufacturer of sewage ejectors, pumping machinery and rotary air-compressors, has announced the appointment of the Capitol Equipment Co., Bank of Commerce Building, Charleston, W. Va., to represent them in the southwestern part of that state.



The Truck that Earns Money Is the Truck with the *Right* Tires

Rolling tonnage is the secret of truck earnings. And to roll the tonnage at money-making speed and money-saving cost, your truck needs the *right* tires.

Right tires mean fewer delays—consistent hauling. *Right* tires mean lower repair bills—longer truck life—less cost per mile. *Right* tires mean Goodyear Tires.

Goodyear has specialized the making of truck tires—Heavy Duty Cushion, Super Cushion, Pneumatic Cord, Plain Solid—to provide the one *right* design and body structure for every type of hauling and every road condition.

For slow, heavy city work—for greater cushion and increased speed with complete reliability—for fast travel and long mileage on the open road—there is a Goodyear Tire accurately designed and built. There is even a difference between pneumatics for stop-and-go service on city streets and for long non-stop trips from state to state.

Expert Goodyear Truck Tire Dealers are at your command for consultation on the *right* type of Goodyears for each vehicle in your fleet.

The Greatest Name In Rubber

GOODYEAR

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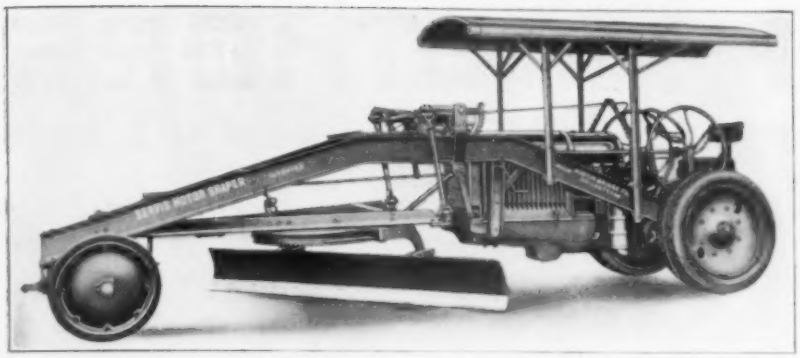


THE SERVIS MOTOR SHAPER

A Dual-Blade Motor Grader and Maintainer

A maintenance machine known as the Servis Motor Shaper has been developed by the Austin Bridge Co., Dallas, Texas. The main frame of this machine is built of 8-inch channel steel well reinforced by ½ x 6¾-inch steel plate to resist side sway and twisting strain. The weight of the shaper riding on a wheelbase of 18 feet insures steady, firm and smooth operation and affords maximum motive power.

Every adjustment of the blades or steering of the Servis shaper is done from a comfortable position at the driver's seat. The blades can be adjusted to operate at any required angle. Also, each blade can be set to run on the same horizontal plane or on a different plane. This feature permits the front blade to make a light cut while a deeper cut is made with the rear blade. The blade-carrying member is controlled by heavy steel arms securely fastened to a large 24-inch diameter gear. This raising arm and gear pivot around a stationary shaft. The gear is driven by a worm screw directly under the shaft on which the gear and raising arms turn. This construction permits strains and impacts to the blade to be absorbed at the worm screw. The operating hand wheels and shafts act only as a means of revolving the worms which mesh with the 24-inch lifting gears.

Since the blade is hooked to the circle at the rear of the center, it swings outward as it is swung around to the plowing position so that it extends 21 inches beyond the front wheel. This enables the operator to cut down shoulders and still keep the machine on good footing.

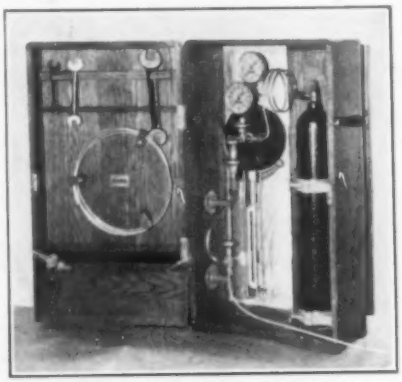
The wheelbase is 18 feet, length over all 21 feet 6 inches, and weight 11,000 pounds. The dual blades are regularly furnished 10 feet long and 12 inches deep. The McCormick-Deering 10-20 industrial tractor travels at 2¼, 4½ or 10 miles per hour.

The machine is also furnished with single blade for general-purpose work. This machine is used extensively by cities and counties where grading as well as maintenance work is to be done.

A New Portable Chlorinator

A portable chlorinator consisting of a standard Paradon dry feed chlorinator housed by means of brackets in a sturdy oak cabinet, which is self-supporting, has been announced by the Paradon Manufacturing Co., Arlington, N. J. The cabinet is provided with a door in both front and rear. The gages and control hands of the chlorinator are so arranged as to be accessible from either front or rear doors. The front door is constructed so that the wrenches and other auxiliary equipment supplied with the machine can be stored loosely in the recesses provided. A 12-pound cylinder of chlorine is attached within the cabinet by adjustable clamps.

All of the parts of the apparatus are interchangeable with the parts on the standard Paradon chlorinator. This machine is of the direct feed type requiring no auxiliary water-supply or piping. Chlorine can be supplied against pressures up to 25 pounds per square inch without any additional equipment. Capacities



THE NEW PARADON PORTABLE CHLORINATOR

range from 0.04 pounds to 3 pounds per 24 hours, from 1 pound to 5 pounds, from 5 pounds to 25 pounds, and from 25 pounds to 125 pounds. The apparatus can be provided with all four ranges, if desired.

The apparatus is provided with a shut-off valve which makes it possible to keep chlorine gas in the machine at all times under pressure, thus eliminating the possibility of water or moisture getting back into the apparatus and affecting its proper operation.

Ludlow Opens New York Sales Office

The Ludlow Valve Manufacturing Co., Troy, N. Y., has announced the opening of a branch sales office in Room 338, Salmon Building, 11 West 42nd Street, New York, for the convenience of its customers in the New York territory, including northern New Jersey, Long Island, southern New York and western Connecticut.

The selling arrangement heretofore existing between the Ludlow Valve Manufacturing Co. and the M. F. Smith Co., New York, has been discontined and this company will no longer handle the sale of Ludlow valves, fire-hydrants and allied products.

Pontoon Units for Swimming Pools

Pontoons which can be easily bolted together to make a float of the desired size and anchored in a pool or offshore in larger bodies of water, make an interesting feature and added attraction to a swimming place. Sometimes such floats are used as starting places in large pools whose length or breadth is greater than specified for official regulation swimming race courses. The pontoon units made by Hill-Standard Co., Anderson, Ind., when bolted together end upon end, make a reliable floating pier for light shipping purposes. Most swimming places, artificial or natural, are too shallow at their edges for the use of water slides, diving towers and springboards. These floats, however, can be moored at points where the depth makes possible the use of such sport apparatus.

The pontoon unit platform measures 4 x 6 feet with a 6-inch apron or siding and has a supporting capacity of 634 pounds per unit. The over-all measure of a unit is 4 x 6 feet x 30 inches. The deck, apron and subframe are of selected wood planking, heavily painted, bolted and screwed together. The drums are of heavy sheet iron painted inside and outside and are air-tight when leaving the factory. They are held in scallops in the subframe by hot galvanized steel straps whose ends are bolted to the frame. All four sides or aprons are uniformly drilled for bolting purposes, enabling the construction of a float of almost any desired size of rectangular shape. With occasional painting these pontoons will serve their purpose for many years.

A SINGLE PONTOON SECTION FOR USE IN SWIMMING POOLS AND AT BEACHES

DODGE BROTHERS TRUCKS

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Workers on the job, money-savers on the cost sheets . . . Dodge Trucks

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On the cost sheets—of any contractor they serve—Dodge Trucks show records hard to better . . . In operation and in upkeep, their cost is surprisingly low. Their low first cost and long life add still more to the profits of those who own them.

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PRICES

MERCHANTS EXPRESS—109" w. b.	$ 545
COMMERCIAL TRUCK—120" w. b.	775
1-TON—130" wheelbase	995
1-TON—140" wheelbase	1065
1½-TON—150" wheelbase	1345
1½-TON—165" wheelbase	1415
2-TON—150" wheelbase	1515
2-TON—165" wheelbase	1585
3-TON—135" wheelbase	1745
3-TON—165" wheelbase	1775
3-TON—185" wheelbase	1845

Chassis f. o. b. Detroit

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